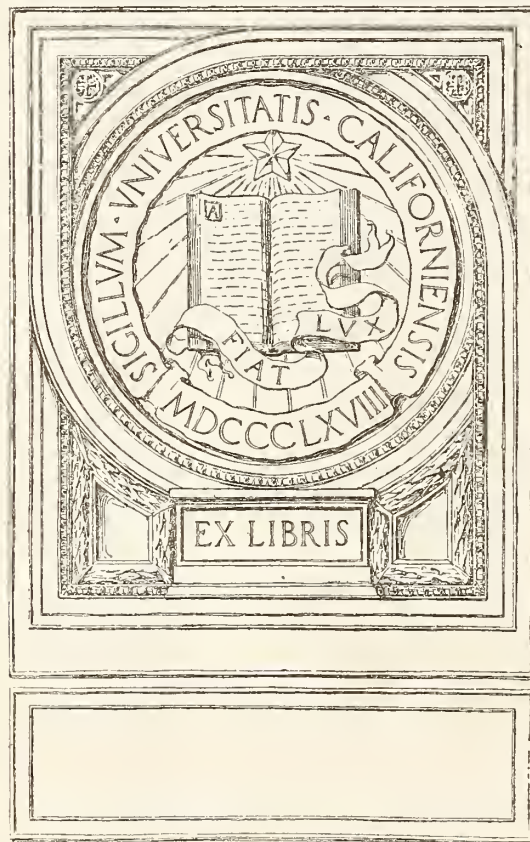


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The Journal of the Colorado State
Medical Society

Editor

FRANK B. STEPHENSON, M.D.

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Editorial Comment

FURTHER SACRIFICES TO YELLOW FEVER

To those who believed that the ancient scourge of yellow fever became extinct with its subjugation in Cuba, Panama and our Southern States, the report of the recent deaths among the workers of the Rockefeller Commission in Mexico will come as a distinct surprise and disappointment.

As a matter of fact the disease still lingers throughout the littoral of the Caribbean Sea. During the past few years, while the energies of the smaller nations of Latin America have been expended in preparations for war, an old and formidable enemy has appeared among them to exact the customary toll of neglect and indifference.

The Reed Commission in 1901 revealed enough of the natural history of yellow fever to make its extermination easily possible wherever proper methods of sanitation can be carried out; at the expense of Lazear's life and Carrol's health they demonstrated that the species of mosquito known as the *Stegomyia Calopus* is alone responsible for the transmission of this disease, and further contributions by Gorgas, White and others developed campaigns against this African invader which reclaimed vast areas hitherto closed to the white race.

But to annihilate the infection completely calls for a cooperation between the neighboring republics to the south of us which has not yet been effected. The disease smoulders in the squalid habitations of many hamlets in Yucatan; it thrives in the pestilential climate of Central America and it has re-appeared over and over again in Columbia and Ecuador. In this emergency the Rockefeller Foundation has sent an expedition, with a very large personnel and equipment to assist the sanitary forces in coping with yellow fever, and to determine, if possible, the microbic origin of the disease. Dr. Noguchi has announced the discovery of this organism and also the preparation of an immunizing serum, but his work has not been entirely confirmed. We are justified in concluding however that great progress has been made toward the final extirpation of the plague, from the Western Hemisphere at least.

The self sacrifice involved in work of this character is hardly appreciated by the public it protects; the achievements of medicine are so robbed of the spectacular, and the ranks of great investigators are recruited so sparingly that few indeed care if the martyrs of science are remembered or not. The profession however will not be unmindful of the heroic consecration to duty among its members in distant and dangerous fields, nor will it fail to cherish the memory of those who fall.

J. W. A.

JUBILEE VOLUME. NOTICE!

The work of compiling the material for the Jubilee Volume is progressing rapidly, and the lists of publications of members of this Society, from 1871 to date, will go to press very shortly. The difficulties encountered in gathering this material are so very considerable that the committee cannot hope for accuracy and completeness without the active cooperation of members. Those who wish the lists of their work to appear properly and without omissions should send a list of their titles, the journals in which they appeared, and the dates, without further delay.

W. A. JAYNE,
Chairman of Committee.

STATE BOARD OF HEALTH NOTES.

On Publicity.

The first of publicity of which I have any authentic data is that of the lepers in ancient times, who on the approach of any one would cry out "Unclean". That no doubt had the effect of creating a sort of isolation of the victim and thus preventing the catching of the disease.

Isolation in the case of communicable diseases has extended to great lengths in modern times until there are a large number under the rule. All the recognized communicable diseases are now isolated for a longer or shorter time, varying in the different states.

The venereal diseases have escaped until recently, but even these are now being corralled, even the name of the unfortunate patient being sometimes required. Of course the fact that the venereal disease is acquired sometimes in a way not at all commendable to the recipient, has been a deterrence to making public the name. But in almost every instance the claim of the

physician to "privileged communication" in regard to communicable disease has given way to the better plan of reporting to the health department.

The publicity given to the recent smallpox epidemic has had a most salutary effect. The public has been informed through the press of all cases and deaths as soon as they occurred. The result has been that the public has crowded the offices of physicians and boards of health demanding vaccination.

Smallpox assumed a malignant type notwithstanding the claims of the anti-vaccinationists that sanitation had made it a back number.

They found that though they might live in a "spotless town", be an advocate of a "bath a day", be "chaste as ice" and "pure as snow", neither sanitation, chastity nor purity would protect from smallpox.

The fact that one of our Western cities tried to hide the fact that it had plague with the result that it had to call on the U. S. Public Health Service for help has not been forgotten.

"The world is still deceived with ornament;
In law, what plea so tainted and corrupt,
But, being seasoned with a gracious voice,
Obscures the show of evil? In religion,
What damned error, but some sombre brow
Will bless it, and approve it with a text,
Hiding the grossness with fair ornament?
There is no vice so simple, but assumes
Some mark of virtue on his outward parts".

Ouija, page Mr. Shakespeare as we wish to assure him that we have found an exception at least in this part of the world, to his statement, "The world is still deceived with ornament".

J. W. M.

Original Articles

ADDISON'S DISEASE.*

L. W. BORTREE, M.D., COLORADO SPRINGS.

Although Addison's disease is a well recognized clinical entity, it does not conform to the usual types of disease, in that it may have a number of different causes. However, in all cases, there is present some lesion of the suprarenal bodies. In the vast majority of cases the lesion is due to the tubercle bacillus. This is the cause in about ninety percent of the reported cases. The next most frequent cause is an atrophy; either a simple atrophy, so called, or else an atrophy consequent upon a chronic inflammatory condition with subsequent fibrosis. Tumors, syphilis, or echinococcus cysts may originate the trouble, though these causes are most rare. Trauma has been assigned as a frequent predisposing factor and Yushtchenko¹ reports bronzing, low blood pressure and asthenia in soldiers following trauma, all of the cases ending in recovery.

In practically all cases both the suprarenal

bodies show destruction of their substance by the pathological lesion responsible. In addition, a careful search will reveal, in most cases, that there is a more or less well marked disturbance of the sympathetic system, a marked lymphoid hyperplasia, and usually a persistence of the thymus. Many of the writers believe that the condition is allied to status lymphaticus.

The skin shows one of the most marked signs of the disease in the pigmentation, which may be of almost any degree of brown from a light cream color to a black. This pigmentation is most marked on the parts of the body exposed to the light, the groins, axillae, the flexor surfaces of the joints, the linea alba of the abdomen, but not upon the palms of the hands, beds of the nails or the soles of the feet. Pigmentation of the mucous membranes of the mouth and nose is common and, in some cases, there has been reported pigmentation of the serous surfaces of some of the body cavities, though this is rare. Pigmentation is not an essential to the disease, as cases have been reported which had no pigmentation, yet were proven to be Addison's disease at autopsy. This color change is due to the deposition of pigment in the rete malpighii in excess of normal amounts. The source of the pigment is not known, but as it contains no iron, it is apparently not a derivative of the hemoglobin.

When the pigmentation is marked there is a phenomenon often seen, the so-called white line, that is most striking. This is produced by lightly scratching or stroking the skin when, after the lapse of a few seconds, a well marked white line will form on the area scratched, and will persist for several minutes. This is not present in all cases and the cause for it is not well established. It is possibly due to some secondary alteration in the sympathetic system. The other viscera of the body, as a rule, show no alteration in structure.

The disease, therefore, is one involving mainly the suprarenal bodies, and secondarily, the skin, lymphatic and sympathetic systems.

The recent increase in the study of the endocrine glands has led to many additional hypotheses as to the function of the suprarenals, especially in relation to the other glands of internal secretion. Tokumitsu² has noted hypertrophy of the cortex of the suprarenal following ligation of the duct of the pancreas, and interprets it as a compensatory process. He states that the medulla of the suprarenal is antagonistic in action to the pancreas. Raymond and Francois³ state that an increase of thyroid activity will, in part, compensate for a suprarenal insufficiency, basing this upon a case of Addison's disease which later developed exophthalmic goitre, whereupon the Addison's disease markedly regressed. Acting upon this hypothesis, they administered mixed suprarenal and thyroid therapy and obtained marked relief in three cases.

Owing to the etiological factors in this disease, it is almost always very chronic, cases having been noted that gave a history extending from eight to twenty years, though the av-

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

erage duration of symptoms is from one to four years. Cases have been reported of apparent acute Addison's disease, but in these there had probably been signs before which had been ignored or incorrectly interpreted. Cases due to tuberculosis of the suprarenals give the most chronic course as a rule, while the cases due to atrophy or trauma to the suprarenal direct, give the shortest course. Maisonnnet⁴ reports a case where the right suprarenal was destroyed by a shell fragment, and death followed in ten days. This case showed well marked pigmentation, small, rapid pulse, low blood pressure and great asthenia. Autopsy revealed complete destruction of the right suprarenal and the almost complete atrophy of the left, it measuring only one-half by one centimeters. The majority of cases occur in men; the ratio being six men to four women. The majority of cases are found between the ages of eighteen and sixty, although congenital cases have been reported.

The symptoms of Addison's disease in addition to the pigmentation before mentioned:

Marked asthenia; the least exertion causing extreme exhaustion, dyspnea and palpitation. This is slight at first, becoming more marked as the disease progresses. The cardiovascular system shares in this asthenia, and the pulse becomes weak and rapid and the blood pressure reaches lower levels than in any of the other chronic diseases. In some cases the blood pressure is so low that it is impossible to measure it by the usual clinical methods. The heart sounds are weak and of poor quality. As the disease progresses there are added nervous and mental symptoms. Apathy is early seen and is progressive. Headache is a common complaint and, in the later stages, delirium and loss of memory are added to the symptom complex.

Among the early symptoms, and ones that persist to the end, are the gastrointestinal disturbances. Early in the course of the disease the appetite is apt to be capricious and the bowels constipated. When the disease is well established, nausea, anorexia, hiccup, vomiting and diarrhea supervene. There is usually some abdominal pain which may take a form similar to gastric crises. The gastric contents, however, are usually normal until near the end of the disease.

Amenorrhea is common in women and loss of sexual power in men.

The blood may show anemia and will usually have a high percentage of lymphocytes, though the total count will be within normal limits.

The urine reveals nothing of constant pathology. The body is usually emaciated.

Prognosis in well marked cases is uniformly fatal. In some cases where the disease is recognized early and the lesion is confined to only one of the glands it is possible that a cure might be attained; e. g., by surgical methods. It is probable that the usual case in which a recovery is reported is a case of mistaken diagnosis.

Treatment of this condition in the past has been largely along symptomatic lines, and has

been wholly unsatisfactory. The usual tonics and stimulants are without avail. Since the advent of substitution therapy, the outlook is more hopeful. If the glands are not entirely destroyed, it may be possible to supplement their secretion by resorting to some of the commercial gland preparations. These seem to be of value in the early case and, when properly used, may offer some hope to the patient and his physician. The most frequently used forms of the gland are the solution of epinephrin and the dried gland. The solution is usually given in doses of five to thirty drops, by mouth, according to the effects shown by the blood pressure and the asthenia. When the proper dose is found, it should be gradually reduced. The doses recommended for the dried gland are from five to twenty grains a day. Raymond and Francois use the dried gland combined with desiccated thyroid. Their method is to give 0.5 grammes of suprarenal and 0.01 grammes of thyroid every morning for ten days, then to follow with a ten day period of plain suprarenal, and ten days of the mixed treatment. This had a very good effect in three cases which they treated. The solution of epinephrin has also been used subcutaneously and intramuscularly, but with no more satisfactory results than when given by mouth. The use of solutions of the pituitary has not met with success. In many cases the use of the glandular extracts by mouth has induced anorexia and vomiting, which is to be avoided in such cases owing to the natural tendency of the disease.

The case which I wish to report at this time is that of a young man of eighteen, first seen May 4, 1921. His mother had died of pulmonary tuberculosis when he was four, and he had been with her constantly since his birth, so the source of the infection is obvious. There were no other children and his father, step-mother and step-sister are all living and well. Following his birth he had constant feeding difficulty for the first year and, at that time, had gained only four pounds over his birth weight. Following a change of food, he did well and was a healthy child. He had measles, scarlet fever, whooping cough and mumps in childhood, without ill effect. At the age of eight he had pneumonia, lasting about two weeks, and made a quick recovery. At the age of fifteen he had adenoids removed.

In the summer of 1920 he was thrown from his wheel in a collision with an automobile and injured his back. From this accident he made a slow recovery and during the balance of the year felt below par and, as he said, "had no pep". He attended school all winter and was not out on account of illness, but frequently complained of feeling tired. His step-mother noticed that he grew more swarthy than usual during the months of March and April, 1921, but noticed nothing else out of the way with him other than the fatigue. The boy was a rather quiet and studious chap and did not use tobacco or liquor.

May first he fainted while at school, and his family date the illness from this time, though

he stated that he had not felt entirely well for several days. He came home and went to bed as he felt so weak that he could not sit up. The night of May second he developed nausea and was ill all night. He was seen professionally the first time on May 4, 1921.

At this time his physical examination was as follows: slender boy; height five feet, six inches; weight one hundred twenty pounds; well developed and fairly well nourished. Marked brownish pigmentation of the skin; most marked on the face, lower abdomen, axillae and groins. Pupils equal, regular, reacting to light and accommodation. Tongue dry with brownish coat. Teeth in good repair. Nose and throat negative. Thyroid not palpable. No glands palpable. Upper lobe of left lung showed a few coarse, dry râles after cough; lungs otherwise negative. Heart sounds feeble, no murmurs made out; area of heart dulness not enlarged. Blood pressure, systolic, 90, diastolic, 54. Spleen palpable and slightly tender. Slight tenderness over McBurney's point. Abdomen otherwise negative. Right testicle fixed in inguinal canal, genitalia otherwise normal. Reflexes negative.

Laboratory findings: Hemoglobin 100 percent; R.B.C., 6,112,000; W.B.C., 6,900; differential count: polynuclears, 50 per cent; small mononuclears, 35 per cent; large mononuclears, 14 percent; transitionals, 1 percent. Blood platelets increased. Red cells normal in size, shape and color. No blasts seen.

Urine: sp. gr. 1.022, acid, amber color; no albumin, sugar, acetone or diacetic acid; sediment showed a few fine granular casts, but no blood or pus.

During the next three weeks all the symptoms increased markedly in intensity; the pigmentation grew more in extent and deepened in color; the vomiting increased until no food was retained at all. On May 11, the eleventh day of the acute disease, he developed hiccough, which persisted until the end. The systolic blood pressure varied from 100 to 66, and the diastolic from 58 to 26. The temperature was continuously subnormal and the respirations shallow and sighing, approaching a Cheyne-Stokes type near the end. On the thirteenth day of the illness he showed a slight irritability which increased to an active delirium towards the last. He complained of diffuse abdominal pain at times, usually following a severe vomiting attack. He died on May 25, 1921, the twenty-fifth day following the acute onset.

In the matter of treatment in this case, both the symptomatic and substitution methods were tried, but neither offered the least aid. The use of the solution of epinephrin hypodermically in a dose of 0.5 cc. caused no rise in the systolic blood pressure, but the diastolic dropped to 38 and then apparently to zero. There was a well marked nervous reaction and a feeling of apprehension that lasted for an hour. Owing to the ill effects, this mode of administration was not again attempted. The use of the dried gland by mouth caused marked vomiting

every time it was used. Extract of pituitary given intra-muscularly caused no reaction and seemed to increase comfort. Symptomatic treatment yielded no results whatever.

Postmortem examination in this case showed both suprarenals to be enlarged to about four times their normal size and to be entirely caseous from tuberculosis. The heart was very small and measured about six by nine centimeters in diameter. The spleen was large and had unusually well developed markings. The right testicle was in the inguinal canal. All other organs were normal and no other lesion of tuberculosis could be found. The brain and spinal cord were not examined.

To summarize: this is the case of a boy of eighteen acutely ill of Addison's disease for a period of twenty-five days, although slight weakness and an increase of pigmentation had been noted for some time before. The presenting symptoms were weakness, pigmentation, hiccough, vomiting, diarrhea, low blood pressure, delirium. Postmortem examination revealed bilateral suprarenal tuberculosis (caseous) but no other gross focus of tuberculosis.

According to some this might be accounted an acute case, but careful questioning elicited a history that apparently extended over a period of several months, though the most marked manifestations were confined to a period of about three weeks.

Two questions are uppermost in the consideration of this case. The first is the brevity of the closing chapter of the life story. Was this due to the age of the boy, since we all recognize the virulence of tuberculosis in the young? How much weight is to be placed on the evident genital insufficiency, as shown by the undescended testicle, as an added factor in the case? The second point of interest to the writer is the part played by the trauma of the fall and injured back ten months before.

Therapy in this case was entirely unavailing, and the final outcome was predicated from the first. It is probable that there will never be any form of treatment that will be successful in cases such as this, where the whole of the affected organs was destroyed. However, there are undoubtedly many cases where there is a minor degree of involvement of the suprarenals in which the substitution therapy would be of value. In such cases as the latter, a prolonged use of some form of the gland should so improve the bodily nutrition that the lesion might be repaired and the remaining portion of the gland might hypertrophy until it could furnish enough of the secretion to supply the needs of the body.

It is possible that in many cases of tuberculosis there is a lesion of the gland that is responsible for the weakness and the low blood pressure, though in the majority of cases this is probably due to toxemia rather than to an actual lesion of the suprarenal bodies.

Diagnosis of Addison's disease should not be made merely upon the finding of a low blood pressure in a weakened patient, but should be

reserved for cases that show more of the cardinal signs.

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DISCUSSION.

E. D. Downing, Woodmen: In regard to Dr. Bortree's not finding the old lesion in this case: If one takes out the lungs at autopsy and makes, say, eight or ten cuts through the lungs, he will often miss an old focus in there. If you have the time and opportunity to blow up the lungs and irradiate them, then you can see the lesions and cut down on them. The old idea that the primary focus is in the lungs and that lesions in other organs such as in this case are secondary has not been disproven. If you have had occasion to see how carefully a veterinarian examines the organs in the neck of a cow giving a tuberculin reaction you can see how easy it is to overlook them in the human.

F. B. Stephenson, Denver: Dr. Bortree did not, I believe, touch upon gland transplantation as a means of treatment. What results, if any, have been obtained by that procedure?

W. F. Singer, Pueblo: I am deeply interested in this matter of gland transplantation. I have been interested for a matter of twenty-two years in the study of cellular identity. It is my belief that there is a common identity in the body; that all the cells in the body have to be lined up, and when you take cells from one man's body and place them in another, they must lose their old identity, to take on the identity of the new body.

Dr. Bortree (closing): This postmortem was not done as I would like to have had it, but we did look for any enlarged glands at the hilus of the lungs. There is no question, had this body been carefully examined by a skilled pathologist, that a primary focus would have been found. As to the doctor's question about gland transplantation: I tried to find some definite reference to the effect of gland transplantation in Addison's disease, but I found none. Apparently, from the things I did find, the thing is not feasible. The condition in Addison's disease is more than a mere lack of the blood pressure raising principle. It requires something more than the mere destruction of adrenal tissue. There must be other things combined with it; that is, there is rather an extensive hyperplasia of the lymphatic system, and there is sometimes a hypoplasia of the vascular system, evidenced in this case by the small size of the heart. There is more to it than disease of the suprarenal glands, and the mere transplantation of those glands probably would not be efficacious, according to the authorities. Dr. Singer's point on the blood pressure just bore out the importance of this gland as a blood-pressure agent. How much it has to do in the case of hypertension is very doubtful. The lesion is probably elsewhere.

DIAGNOSIS AND TREATMENT OF GALL-BLADDER DISEASE.*

JOHN R. ESPEY, M.D., F.A.C.S., TRINIDAD.

The inception of gall-bladder disorder is seldom seen by the surgeon, or even by the gastroenterologist. It is the general practitioner who is summoned to relieve the primary cholecystitis, the base upon which all future complications are built. When the family doctor has exhausted his resources he seeks aid from the gastroente-

rologist, who thus sees the condition when it is well developed.

Only when medical measures have failed to relieve, and I believe these exceptions are frequent in the incipency of the disease, is the patient referred to the surgeon, so that he seldom has an opportunity to observe any but the advanced cases.

Cheney, in a recent article on the diagnosis of gall-bladder disease, lays especial emphasis on the importance of getting a complete and minutely detailed history from every patient.

He divides the cases into four groups according to the history obtained.

The first is where attacks of biliary colic recur at irregular intervals, months or even years of good health intervening between them. The description given by these patients is so characteristic that the story itself will make the diagnosis. The sudden onset without known cause, the violence of the pain, its site at the right costal margin, its radiation under the right shoulder blade, its long duration, all combine to make a picture that is unmistakable. Sometimes the pain may be in the epigastrium and radiate through to the back, leading to an indefinite diagnosis of indigestion or gastralgia; it may radiate to the left side rather than to the right, thus directing suspicion toward the heart; it may radiate upward beneath the sternum and so simulate angina pectoris; or it may radiate downward along the right side of the abdomen, pointing to the appendix as the site of the disease. And indeed the appendix is very frequently involved also, not as a coincidence, but as a result of the original causative factors, as was so frequently stressed in the clinical lectures of John B. Murphy. If jaundice occurs after the attack of colic the diagnosis of gall-bladder disease is practically certain, but the absence of jaundice should not cause doubt if the other details are characteristic. Many attacks at their height are accompanied by vomiting, after which the pain subsides; this may convince the patient that the stomach is at fault, a view frequently shared by the physician, if he does not weigh all the details of the story.

The second group consists of those cases where the patient not only suffers recurring attacks of colic, but a distressing dyspepsia fills in the intervals.

In the third group there is no history of violent attacks of pain. The chief complaint is of the stomach, and indigestion is the main part of the patient's complaint. Usually, however, there will be a history of certain manifestations recognized by the patient as different from the chronic gastric distress, commonly referred to the right side under the ribs, where there is a feeling of fullness and soreness and "something in the way".

Lastly, there is that group of patients who suffer from "stomach complaint" of which there is no adequate explanation. The story told by these unfortunates may point toward gastric ulcer, or perhaps to a so-called chronic gastritis; a gradual loss of weight may arouse a suspicion of cancer of the stomach. These conditions may

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exist for years before a late attack of typical colic reveals the gall-bladder as the offending organ, or the exhausted patient will, as a final resort, permit an exploratory operation.

This last class offers the greatest problem in diagnosis, and it is only the experienced clinician who can recognize the real condition in the absence of any of the usual symptoms.

While I realize the great value of a careful physical examination, it is an art for demonstration rather than discussion and will not be taken up now. It is misleading only when the local findings are negative in the presence of the disease.

Cholecystitis is supposed to be of bacterial origin. Biliary stasis usually precedes gall-bladder infection and the development of gall stones, but actual inflammation of the gall-bladder and ducts is nearly always due to some complicating infection. It seems probable that excretion into the bile of bacteria resulting from such infections as typhoid fever, appendicitis, puerperal sepsis, colitis, oral sepsis, chronic ulcerative enteritis or tonsillitis may be responsible for the development of gall-stones and cholecystitis.

The incidence of gall-stones increases steadily as life goes on. Women are said to be five times as liable to them as men, giving rise to the belief that a sedentary life, the wearing of corsets, and pregnancy are factors strongly predisposing to gall-bladder infection and the development of stones. I wonder whether this apparent discrepancy between the sexes may not be partly due to the greater readiness with which women accept operation resulting in positive diagnosis. Personally I have not seen quite twice as many cases in women as in men. In both sexes occupation and habits doubtless contribute much to the etiology. A sedentary mode of life, over-indulgence in food, insufficient regular exercise, obesity, and especially chronic constipation, all favor stagnation of the bile and its sequels. However, a predisposition may exist back of this and I have seen their occurrence in ranchmen and miners whose lives are anything but sedentary.

It has been suggested that a congenital disturbance of the cholesterol metabolism may be responsible, and this perhaps is the reason why gall-bladder disease is common in families disposed to migraine, diabetes, obesity and arteriosclerosis.

In persons in middle life whose general health is impaired without easily discernible cause, the possibility of gall-bladder disease should be kept in mind and the right upper quadrant of the abdomen investigated. A large number of symptoms referable to the stomach may very well be of reflex origin, due to lesions in or about the gall-bladder.

Once the diagnosis has been established the proper course of treatment must be selected, and it is here that we find authorities greatly at variance in opinion.

Dietetic and medical treatment are probably more successful as prophylactic than as curative measures, but are by no means to be neglected. Occasionally we find a case that will not submit

to operation, and rarely a case where general conditions preclude operation, and then diet and medicine are our only recourse.

Diet consists of the avoidance of excesses and at least the moderate restriction of fats and starches.

I do not doubt that the free exhibition of salicylate of sodium may lessen the frequency and severity of attacks. While I believe that it has not been demonstrated that hexamethyleneamine reaches the gall-bladder as an antiseptic, it is recommended on theoretical grounds perhaps only from its known action in infections of the urinary bladder. Of course the use of remedies to dissolve the stones in situ are futile and neither accomplish their purpose nor relieve the cholecystitis.

That the gall-bladder has any function whatever is frequently denied, but if one believes it to have a function it would seem to be that of acting as a reservoir for the bile secreted by the liver, which, dripping down the bile ducts, encounters a closed sphincter, with no outlet except to dam back through the cystic duct and into the gall-bladder. Here it remains for a variable time, becoming more concentrated, until the sphincter of the common duct is relaxed, permitting the escape of the bile into the intestine in quantities suited to the need of the food elements to be digested. To abolish this reservoir without due consideration would seem to be questionable, but the need for operation is often too imperative to permit these considerations to stand in the way.

After gall-stones are formed and the typical clinical history is established, the prognosis will depend upon the extent of the pathologic changes which have taken place in the gall-bladder and bile passages. The lodgment of a stone in the cystic duct with distension of the bladder; thickening of the bladder wall; the formation of adhesions between bladder and duodenum; febrile attacks due to gall-bladder infection; all point to the futility of further medical treatment and surgery offers the only chance of health and safety.

It is the opinion of Crile that if the mucous membrane of the gall-bladder is gangrenous, or a chronic infection is present; if a stone is imbedded in the cystic duct, or the wall of the duct is thickened, or the wall of the gall-bladder is thickened by scar tissue resulting from an earlier infection; under any of these conditions mere drainage of the gall-bladder will usually be followed by recurrent obstruction and infection, and the wise surgeon will remove it. On the other hand, if the gall-bladder has approximately normal walls and the cystic duct is in good condition, even if numerous sizeable stones are present, cholecystostomy, performed with due care, will rarely be unsuccessful.

The technic of operations on gall-bladder and ducts is definitely established with the usual variation in method of individual operators. Judd of the Mayo Clinic believes cholecystectomy to be as safe as cholecystostomy. The immediate convalescence is more satisfactory and the ultimate results are better if the gall-bladder is re-

moved. Whether it is done by starting at the fundus and dissecting downward, or starting at the cystic duct and freeing it first, it is essential to securely tie the cystic artery, either in conjunction with the cystic duct or separately. If the artery is isolated with the duct and tied at the same time it will be sufficient. In order to prevent any disturbance of the common duct it is absolutely essential that a complete isolation of the cystic duct be made before any clamps or ligatures are applied. The most serious consequence of a cholecystectomy is trauma to the common duct, and it has been caught in clamps and completely divided. If the cystic duct is isolated beforehand this cannot happen.

While in the effort to remove the last vestige of the cystic duct the common duct is more liable to injury, Dr. Judd does not feel that it is necessary to remove all of the cystic duct to obtain satisfactory results. It is very seldom indeed that a cystic duct stump or even the entire duct will cause trouble afterward.

Enlargement and hardening of the head of the pancreas are indications for removal in preference to drainage, and this is true also if a slight degree of pancreatic jaundice is in evidence. That cholecystectomy gives better results where pancreatitis is associated with gall-bladder conditions than does any other form of treatment is probably because of the changes produced in the excretory apparatus by the removal of the gall-bladder.

Judd does not advise opening the common duct for exploration unless stones can be palpated, or there is clinical evidence of stones or infection in the duct. Dilatation of the common duct is not an indication for draining it, as this change would take place if the gall-bladder had been out of commission for any length of time regardless of the condition of the common duct.

In closing it may be well to refer to the possibility of cancer. As stones are found in practically all cases of cancer of the gall-bladder, there is a general conclusion that they are the cause of the cancer. But when we consider how frequently stones are found, many being discovered at autopsy or at operation for other cause when their presence had not been suspected, we would naturally expect to find them in a certain proportion of cancer cases. Further, cancer, beginning as it does in the mucous membrane, may very well bring about conditions or infection favoring the deposit of calculi. Therefore, while admitting that the prolonged irritation of chronic cholecystitis, like other prolonged irritation, may be the exciting cause of cancer locally, I would think it probable that quite as frequently and perhaps oftener the gall-stones are the result of predeveloping cancer, and the occurrence of attacks of biliary colic does not of necessity indicate a great causative danger of cancer.

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DISCUSSION.

O. M. Gilbert, Boulder: As to the frequency of gall-stones, Dr. Stoerk, of the University of Vienna, says that on the basis of his experience of 100,000 autopsies, one man in sixteen past the age of forty that comes to autopsy in the course of general work has gall-stones, and one woman in four at the same age. Dr. Stoerk for a long time was of the opinion that a causal relationship can be established. There bladder and ducts, but says that on account of the frequency of gall-stones it is by no means definite that a casual relationship can be established. There is one point I hope the author will throw light upon—one that has been coming into our armamentarium in gall-bladder work in the last few years—and that is the trans-duodenal drainage. Meltzer of the Rockefeller Institute showed eight or nine years ago that a twenty-five percent solution of magnesium sulphate at the point of exit of the common duct had the very peculiar double effect of relaxing the outlet and at the same time contracting the gall bladder. That, however, has been used by others since, but he directly injected this solution and then aspirated the bile, separating it into the three contents—"A," "B," "C" bile—the contents of the common duct, of the gall bladder and of the biliary ducts, respectively. The establishment of the fact of infection of this bile has been of tremendous value as a diagnostic measure, and also in the treatment of gall-bladder infections, either short of surgical procedures or supplemental to surgical procedures. At the Congress at Baltimore last winter I saw Freudenwald with nine cases lined up doing duodenal drainage upon them. Smithies in Chicago is using it very extensively. And then in many instances he will be able to avoid operation, and it helps as a supplemental procedure to clear up many cases which previously did not clear up with operation. We have used this in quite a number of cases, and I believe it is of a very decided benefit.

D. P. Mayhew, Colorado Springs: This question of cholecystitis has been a very interesting one to me from last year. I would like to say a few words about this method of bile drainage which Dr. Gilbert has spoken of. Following the publication of the papers of Dr. Lyon and Dr. Smithies, Dr. Brown and I began work on cases of cholecystitis with duodenal tubes. We found in a certain proportion of cases, which we have not figured out as yet, we could get the separation of bile into the so-called A B C bile. In a fair proportion of the cases we did not see that sharp distinction of color which Lyon has spoken of. On the other hand, we did find that in a fair proportion of these cases we got infections with colon bacilli or staphylococci in the second and third portions, which did not show up in the A bile. I think probably that the most important thing to be found with the duodenal tube is the presence or absence of infection. We know that ordinarily the duodenum is free from organisms. This is not strictly or absolutely true, because in certain conditions of gastric or duodenal trouble we may have organisms present. The duodenum should ordinarily be free from organisms. Therefore, if we find organisms in these biles, especially in the second and third portions, it is fair to presume they come from the gall-bladder or gall-duct. If this is true, the inference is that the gall-bladder is at fault, and operation probably is advisable. The essayist spoke of stagnation of bile. That is a term of which I know nothing. There is no evidence that the bile is not secreted in these cases the same as in a normal case. If they mean stagnation of bile in the gall-bladder, that is a different thing.

F. C. Buechel, Denver: The term "gall-stones" has been used so long and so universally to de-

scribe the lesion cholecystitis that it is difficult for the average layman to appreciate the fact that the symptoms come from the gall-bladder itself and that the presence or absence of stone is inconsequential. After a gall-bladder operation the family are always delighted with the diagnosis if they are shown a hundred or more stones or one unusually large stone that the gall-bladder contained. They are many times a little skeptical when they are shown a gall-bladder with very slight macroscopical change and without any stones. It not infrequently puts the surgeon a little on the defensive to explain such a gall-bladder to the family. X-ray plates not showing stone are at times believed by the patient to disprove the diagnosis of gall-bladder disease that has been made, and a much-needed operation is, therefore, postponed. X-ray plates are of value if the information they bear is kept for our enlightenment rather than for the patient's curious gaze.

Cholecystitis when it is seen by the doctor is ordinarily a surgical disease. If present-day ideas as to its etiology are correct, proper attention to the teeth, gums and tonsils with active, vigorous exercise should decrease the incidence of cholecystitis, especially in the male. Many cases are apparently dependent on the high blood cholesterol content that accompanies pregnancy and cannot be expected to be very greatly diminished by attention to focal infections.

The inverse innervation action of magnesium sulphate in the duodenum when it has not come in contact with the gastric mucosa, as discovered by Meltzer, has given us rather striking therapeutic results in not a few cases. Anyone who has done much gall-bladder surgery will appreciate the therapeutic futility of relaxation of the sphincter of Oddi with contraction of the gall-bladder in the vast majority of cases of gall-bladder disease. The method is worth an honest effort in certain early cases without stones and with a patent cystic duct. In Lyon's original article certain cases of empyema of the gall-bladder were treated by this method. I am sure that if I personally had an empyema of my gall-bladder, I should prefer taking my chances with surgical drainage. If my physical condition were such as to contraindicate a general anesthetic, I should still have it drained surgically but under local anesthesia. The Lyon method has merit and should be used much more frequently than it is. The technic is not at all difficult and can be used by anyone who has seen it done once or twice.

In a case of dyspepsia of suspected gall-bladder origin, what macroscopic pathology may one encounter to adequately explain the symptoms and physical signs?

If stones are present in the gall-bladder everyone will be satisfied with the diagnosis. If there have never been any common duct symptoms or signs, careful palpation of the common duct is ordinarily all that can be expected of the surgeon to be sure that there are no stones in the common duct. If there have been any common duct signs a negative palpation is not sufficient to rule out a stone; the duct should be opened and a probe passed in each direction. If the duct is dilated so that a finger can be inserted into the duct it should be used, as the information gained by direct touch is more accurate than that gained from a probe. On several occasions I have found a stone with my finger in the duct when palpation failed to find a stone and when a probe in the duct passed freely into the duodenum with no apparent obstruction.

The gall-bladders without stone present many different appearances that are easily and quickly seen to be pathologic, such as a thickened gall-bladder or a whitish gall-bladder, or one that has adhesions to surrounding structures, as to the duodenum. These adhesions are not always apparent when the fundus of the gall-bladder is inspected. The adhesions may be from the neck of the gall-bladder to the duodenum or stomach and are only seen when the whole gall-bladder is inspected. Enlarged glands may be palpated. If the other regions drained by these glands are neg-

ative, the presumption is that the adenitis has come from an infection in the gall-bladder. The process is comparable to an auxiliary adenitis which may require opening after the cause of the trouble—a cut on the finger—has entirely healed.

Riedel's lobe is an indication of gall-bladder disease. I have seen it with cholecystitis with stone and without stone.

Then there is a most discouraging group of cases that have a microscopic alteration of the mucosa sufficient to give definite symptoms of gall-bladder indigestion and yet to the naked eye the gall-bladders look normal. W. C. McCarty and J. R. Corkery of the Mayo Clinic have a paper entitled "Early Lesions in the Gall-Bladder". They describe six different pathologic pictures and then state: "The conditions which have been described above do not alter the gross exterior of the organ, nor do they alter greatly the internal appearance to the naked eye."

C. D. Spivak, Denver: We are now undergoing the same period with reference to the gall-bladder as that of ulcer of the stomach. The adjustment of the human body to foreign things is one of the most remarkable phenomena. A man swallows a pin, and the pin travels throughout the body for years and does not cause any pain, because the muscles adjust themselves in such a way that they prevent injury. It is the same thing with gall-stones. The system adjusts itself. I am not discussing the subject of how gall-stones are formed. While the gall-stones are there the system adjusts itself, and if it comes to the point that they are causing pain, it is merely due to the digestive or metabolic disturbances that occur. If we can prevent digestive disturbances there will not be any attacks of pain. I have had numerous cases that have been diagnosed as gall-stones by physical examination and confirmed by the x-ray, that have done well for years after their digestive habits or nutritional errors have been corrected. I know of no other food, no other single food, that will prevent digestive disturbance as does milk.

T. A. Stoddard, Pueblo: I cannot let a paper like this go by without some remarks. A great deal of time has been wasted in the discussion as to whether to drain or remove the gall-bladder, and I do not believe I will waste any of your time as to that. The gall-bladder that is pathologic, strictly so, perhaps in most instances should be removed; and drainage, in cases where the gall-bladder is not in bad condition, is worthy of attention. The method of drainage is what I want to speak of most. The mucous lining of the gall-bladder resents traumatism perhaps more than any other tissues in the human body, unless it be the conjunctiva. If you will take a piece of rubber and put it in the eye and shut the lid over it and leave it twenty-four hours, and ask the patient to move his eye all the time, if you don't get a destroyed eyeball you will certainly get a great deal of destruction in the conjunctiva. And such is the condition of the gall-bladder. Every breath the patient draws, down, up, the tube is striking the mucous membrane of the gall-bladder and is bound to cause trouble, and you will have to have the gall-bladder removed; and I believe a great many of the return cases in gall-bladder surgery after drainage are due—entirely due—not only in part, but entirely due—to the faulty method of drainage by rubber tubes.

Dr. Espey (closing): I am very glad that Dr. Gilbert brought up the question of trans-duodenal drainage, and I hoped that would be done. My subject was too long for fifteen minutes, and after writing out the paper I had to slash it more or less to get within the fifteen minutes, and I felt we would have a little discussion on that after the reading. I am using the method only as a matter of diagnosis and not as a matter of treatment. The question of a stagnation of the bile may be just an unfortunate expression. I think that when gall-bladder empties itself repeatedly and freely, there might exist a cystitis, but probably there would not be formation of stones; but as the gall-bladder becomes diseased, perhaps as a result of

the cystitis, I can conceive at any rate of a stagnation and of the bile more or less going down the common duct, using it as an additional gall-bladder and leaving stagnated bile in the gall-bladder. Now, Dr. Spivak speaks of not operating for stones. Gentlemen, we frequently have to operate for stones. The stones are only a symptom of cholecystitis. I know that. But when the stones are drifting down into the common duct and are causing repeated colic, and your patient has to be kept under the influence of morphine for a time until that colic passes, and your patient is losing out and becoming more or less of a fiend, you will operate for the gall-stones when perhaps you would not have operated just for the cholecystitis, even if you are operating for a symptom.

EXTRA-UTERINE GESTATION.*

H. R. BULL, M.D., GRAND JUNCTION.

The present day frequency of extra-uterine gestation may be variously estimated as from one-tenth to one-fifteenth as frequent as appendicitis. The statistics of large hospitals show that from three percent to five percent of their laparotomies are for this condition. Extra-uterine gestation constitutes one of the frequent emergencies of every day practice, and the appreciation of this emergency by the profession is as important as the early recognition of appendicitis, or more so, because the acute emergency is greater.

The first recorded case of extra-uterine pregnancy is by Albucasis in the tenth century. Several cases are recorded by Riordan in the sixteenth century. During succeeding periods of time the subject of extra-uterine gestation was chiefly of interest from the standpoint of pathology. In 1883 Lawson Tait first operated on a case of ruptured tubal pregnancy and subsequently wrote a monograph on the subject. Prior to Tait's monograph extra-uterine pregnancy was considered to be a condition of rare occurrence. Hennig in 1876 stated that even the directors of large obstetrical institutions might never encounter a single case, and Parry in 1876 was only able to collect five hundred cases from the entire literature. It was with the development of abdominal surgery that the frequency of the condition became recognized.

While the actual cause or all the causes of extra-uterine pregnancy are not fully determined, an antecedent Neisserian infection with adhesions of the tube or thickening or stricture of the tube and loss of cilia are among the most common causes. Pelvic adhesions may bind down the tube and prevent the passage of the fecundated ovum from the vicinity of the ovary. Lack of development of the tubes as in infantile tubes may be a cause in some cases, or the ovum may be tardy in engaging in the tube until grown so large that it becomes fixed in the tube. A hyperactivity of the corpus luteum of pregnancy may stimulate the mucosa of the tube as well as the uterus for the reception of the fecundated ovum.

A new etiological theory has been advanced

during the past year by Stein and others¹. This authority denies the Neisserian infection theory taking the position that in Neisserian infection both tubes are involved and in a series of forty-three cases operated the opposite tube was found to be infected in only nine cases.

The usual teaching has been that the normal meeting place of the ovum and spermatozoon is in the tube. The only evidence of this is the occasional occurrence of ectopic pregnancy. It is difficult to conceive why the cellular elements in every normal case should meet in the tube and then turn about and migrate to the uterus.

It is Stein's opinion that the normal meeting place is in the uterus. The male cell is universally attracted toward the female. Whenever or wherever union takes place, then and there cell multiplication, and decidual reaction and pregnancy take place. The tube may be perfectly capable of accommodating both ovum and spermatozoon separately, but as cell multiplication immediately takes place the resulting mass is too large to pass through to the uterus.

We know that extra-uterine gestation occurs in the lower animals such as the ape, cows, sheep, bitch and hare.² We conclude that there are different pathological causes to bring about extra-uterine pregnancy, but that a diseased or abnormal condition of the tube from whatever source is usually responsible.

The pathology of extra-uterine pregnancy is the same whether the fecundated ovum is caught in the ampulla, the median portion of the tube or the interstitial portion. The trophoblast which is the epiblastic layer that lines the chorionic villi, and by which attachment is made to the tubal mucosa, attaches in the same manner to the tube as to the endometrium. As the ovum grows it causes the wall of the tube to bulge inward. The walls fuse and capsularize. The villi erode their way between the muscular fibers and make connection with the blood vessels. Responding to the stimulus of pregnancy the uterus enlarges to the size of a three months pregnancy. The uterine walls are thickened and a decidua develops in the uterus having all the characteristics of an intra-uterine pregnancy except that no chorionic villi are present. At the time of false abortion, the decidua is passed away either in small shreds or in one mass. In this connection it is interesting to note the influence of the hormone of the corpus luteum on the continuance of normal pregnancy. We know that we are able to perform with comparative safety necessary abdominal operations on pregnant women such as for relief of impaction of the uterus, appendicitis, or hernias, if we avoid trauma to the ovary containing the true corpus luteum of pregnancy.

Diagnosis. If the cardinal symptoms of extra-uterine pregnancy are kept clearly in mind the average case will rarely fail to be correctly diagnosed. These symptoms are: (1) Missed menstruation; (2) a boggy tender mass on one side of the uterus; (3) little or no fever.

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

¹Med. Record, March 20, 1920.

²De Lee's Obstetrics.

The irregular cases may be very difficult to diagnose. We may have a chronic salpingitis with an acute exacerbation. In such a condition we have a tender mass in the pelvis and somewhat acute and sudden pain. The feel is different, however, and a careful history will bring out the data that there has been no cessation of menstruation and that there has been pelvic trouble for some time. A careful history taken with a pelvic and abdominal examination will usually rule out acute appendicitis, but here the operative indications are definite anyhow and differentiation is not so essential. Every patient presenting symptoms of unusual pain with a threatened or incomplete abortion should be carefully examined with the thought of possible extra-uterine pregnancy, and this is more so if the pain complained of is on the side of the pelvis.

When any woman of obstetric age is taken ill with severe abdominal pain followed by shock the possibility of ruptured extra-uterine pregnancy should be in mind until proven not to be present.

A leucocytosis with normal or subnormal temperature where there is a history of acute abdominal pain followed by nausea or vomiting or shock should suggest a probable ruptured extra-uterine pregnancy.

In any case, the more pronounced the cardinal symptoms the easier the diagnosis.

Treatment. Practically under all conditions extra-uterine gestation calls for speedy operation. The unruptured tube is no exception and should be operated upon as soon as the patient can be placed under favorable conditions in a hospital. There is no emergency in surgery demanding more prompt operative interference than in ruptured tubal pregnancy. The degree of shock is out of proportion to the amount of blood lost. To rapidly open the abdomen, clamp off the tubal mass on either side and, after tying off, to remove blood clots and close the abdomen can be accomplished in a very short time. The question of operating or waiting where no radial pulse can be felt must be left to the judgment of the operator. This is a question on which there is a difference of professional opinion.

Cases. One early case which occurred some thirty years ago was a tragedy. The wife of a physician living in a distant part of Mesa county was seized with sudden excruciating pains in the lower abdomen, lapsed soon into unconsciousness and died within four or five hours. The physician husband did not have time to secure outside counsel or help, and the conditions and circumstances surrounding the case were such that there was harsh talk among some of the citizens of the town and the finger of suspicion was pointed at the doctor. I was appointed by the late Dr. L. F. Ingersoll, then coroner of Mesa county, to investigate the cause of death. The autopsy revealed the abdominal cavity full of blood and a ruptured right tubal gestation.

Case No. 2. March 25th, 1907. Mrs. C., mother of two children, the youngest seventeen

months old and still nursing. Mrs. C. had not menstruated since the last pregnancy. I received a hurry call with the statement that Mrs. C. had fainted and could not be revived. I found her pulseless and with all the symptoms of profound shock and hemorrhage. There was a boggy mass to the left of the uterus which was diagnosed as an extra-uterine gestation. The patient was operated on her kitchen table, the left tube and ovary and the gestation sac being removed as soon as hurried preparations could be made. Mrs. C. made a good recovery and I have attended her twice in confinement since.

Case No. 3. Coincident intra- and extra-uterine gestation. Mrs. R. C., aged 25, of good family history, had always been well, except that she gave a history of four or five attacks of acute abdominal pain in the three years preceding her marriage which attacks would last from three to six days with nausea and abdominal tenderness. These attacks were considered by the patient and attendants to be acute appendicitis. Her last period was July 21st, 1918. Mrs. C. believed herself to be pregnant and on September 10th was attacked with sudden severe pain in the right iliac region much like the attacks of pain that she had previously had.

She was brought forty miles to Grand Junction. The acute symptoms had subsided when I first saw her but there was a tender mass to the right of the uterus which I felt was either an acute disturbance of an old salpingitis or an extra-uterine gestation. There was slight elevation of temperature. I felt justified in keeping the patient under close observation for a few days. On September 21st the extra-uterine gestation sac ruptured, and the patient was immediately operated, with removal of the right tube and appendix, together with the gestation sac and clots.

The uterus was noticed to be enlarged perhaps more than would be expected in an extra-uterine pregnancy of two months and was carefully let alone. This patient was delivered on April 27th of a seven pound boy. Both delivery and obstetrical convalescence were normal.

DISCUSSION.

F. W. Bancroft, New York City: I think the question of extra-uterine pregnancy is a very interesting one, and is one that is still open for discussion. I am very much interested in Dr. Bull's paper. We had a woman come in who had had a normal child. She then had had a round ligament suspension, and following the ligament suspension she afterwards had an ectopic in one tube and then six months later an ectopic in the other tube. At the second operation for ectopic pregnancy I observed that the tubes had been more or less kinked in bringing them up at the time of the Gilliam operation. I believe Polak in Brooklyn has had several similar cases. In performing a suspension operation it is advisable to see that the tubes are fairly well freed. We have been recently analyzing our cases of the last five years, and I think we have had in the region of eighty cases. In these we have only had one death. In this case the fatal issue occurred following a transfusion, where a hemiplegia resulted immediately. We have made them all an immediate operation, and I don't see why it does not correlate very strongly with the abdominal bullet wound cases in the World War.

It was the custom to keep cases in severe shock in the shock tent until their blood pressure reached 90 or above. In these cases a fatal issue often resulted, due to too long detention in the shock wards. In abdominal cases where there is bleeding, the quicker the bleeding is stopped the better, and I feel that this principle should govern our treatment of ectopic pregnancy. The instant we start the abdominal incision, we have an assistant start an intravenous infusion, as we feel that by the time he is able to introduce solution into the veins we will have controlled the bleeding from the vessels in the broad ligament.

The most important symptom is the one of pain and bleeding occurring simultaneously. In other words, we have a spasm of the tube, which is a different type of pain from that which occurs from an inflammatory process, and which, I think, resembles the colicky pain of a ureter attempting to pass a calculus. Then we have some vaginal bleeding and then there is a contraction of the tube and another escape of blood from the vagina. This, it seems to me, is one of the most important symptoms.

T. A. Stoddard, Pueblo: This is an important subject. I have had the opportunity of operating some eighty-odd cases in Pueblo, and I don't think that a Neisserian infection is a causative factor. I have never seen in all the cases I have followed any indication that would lead me to believe that the patient had had any Neisserian infection whatever. That a normal pregnancy may take place, or rather a pregnancy normally take place in the tube, I don't believe, either.

The very moment that the ovum becomes fecundated by the male cell, that same minute the growth begins. The tube is only large enough to carry that ovum from the tube to the uterine cavity. The moment growth begins, the ovum stops, and if every pregnancy began in the tube we would have a far greater number of ectopic gestations than we have. As to operating immediately, I don't think there are many cases we should hesitate about, particularly if the patient is in profound shock. We have at hand the intravenous administration of normal salt solution, and can get the heart up with that. I have seen many cases in which, when the abdomen was opened, the bleeding was still going on, and if we had waited for the pulse to improve we would have made a sad mistake. I lost one case operated on New Year's day. This woman was receiving callers, and she suddenly screamed with pain and fainted, and within four hours she was carried to the hospital—she was only three blocks away—and operated. She was practically hopeless. I believe if she could have had the benefit of a normal salt solution in the vein she would be living yet.

O. M. Gilbert, Boulder: Dr. Hoover has called attention to one of the most important points, I think, in connection with the diagnosis of ectopic pregnancy, with constant bleeding in the peritoneal cavity. It produces jaundice and a withdrawal of some of the serum shows it plainly; and cases of bleeding in the pleural cavity did not show that. Dr. Hoover has not published this work yet, and I shall look forward to it with very great interest at the time it is published.

J. N. Hall, Denver: There is one interesting thing about the diagnosis of tubal pregnancy that some of the older men recognize. Many have had cases in which they did not know the diagnosis of it for ten years. Soon after I began to practice I had a young woman patient with violent pain in the abdomen, and the pain was so violent that I gave her so much morphine that I had finally to resort to atropia to bring her through. Some years afterwards this woman became pregnant again, and I remember distinctly that at the moment of the delivery of the child she had typhoid fever and her temperature was 104 degrees, and she has lived through it all and now is sixty years old. I saw a physician's wife a few years ago who had something that looked like tubal pregnancy, but it was a definite ovarian pregnancy; it was the most nearly perfect ovarian pregnancy that I had ever

known. I also saw a woman who had a tubal pregnancy who was twice carried one hundred and forty miles and operated for different tubal pregnancies, made complete recoveries and has been well since. There are not many go as far as that unoperated and get through safely. I have seen within two or three months a tubal pregnancy where there was also a twin pregnancy in the uterus at the same time. The tube was removed, and the woman in forty-eight hours aborted a three months' fetus on the other side. It is difficult to make a differential diagnosis between a tubal pregnancy with rupture and menstrual reflux through the tube. Dr. Jayne discussed a report of the latter condition reported by me, and we had difficulty in finding any record in which a diagnosis had been made of menstrual reflux through the tube. It is about on the order of ruptured tubal pregnancy, but a very much tamed down expression of the same general symptoms. That girl was in my office last week—a fine, handsome Italian girl. This was done years ago, and I cannot help thinking if she was to be in company with all the women in this world who have had a preoperative diagnosis of menstrual reflux—I don't believe there would be a very big crowd of them.

Leonard Freeman, Denver: I want to speak about a diagnosis I once made in connection with a ruptured tubal pregnancy which caused me some embarrassment. I once had a case brought to me with constant pain in the upper right quadrant of the abdomen. The temperature was in the vicinity of 101 degrees; the pulse was up; and a pelvic examination proved to be negative. There was a slight jaundice, although the patient was not as yellow as Dr. Gilbert has called attention to. The diagnosis was made of gall-bladder trouble; it seemed very clear it was gall-bladder trouble; and Dr. Hall, who saw the case, coincided with the diagnosis. An incision was made over the gall-bladder; the abdomen was found full of blood; the gall-bladder was normal, and a ruptured tubal pregnancy was present!

O. S. Fowler, Denver: I saw a woman about a year ago taken with sudden pain in the abdomen, and the pain disappeared in the abdomen and became located in the right shoulder. Upon examination of the pelvis she complained of excruciating pain in the right shoulder, and a mass was found in the right tubal region. The pulse was under 100 and there was no shock. We advised operation and found the belly full of blood, which shows that the pain might go even as far as the right shoulder and still be an ectopic pregnancy.

J. C. Masson, Rochester, Minn.: Although no reference has been made to full-term extra-uterine pregnancy in either the paper or the discussion, I think it is something we should always have in mind. I have observed two such cases: One patient with a diagnosis of a three months' extra-uterine pregnancy refused to be operated on at Mt. Sinai Hospital in New York. After leaving the hospital and until full term was reached she was treated by a midwife. The patient evidently had a great deal of abdominal pain and nausea. She could not speak English and when seen in the maternity service we failed to get a history of her having been treated at Mt. Sinai. A diagnosis was made of a small fibroid of the lower segment of the uterus incarcerated in the pelvis, and a cesarean section advised. The true condition was found only after the abdomen was open. The child, which proved to be a monstrosity, was dead when delivered. In an endeavor to remove the placenta severe hemorrhage occurred, so it was thought advisable to insert a large pack and leave it in. The patient died. The second patient, I operated on about one year ago. She presented much the same picture, although a diagnosis was not made during the early months. When we saw her a diagnosis of fibrous tumor incarcerated in the pelvis was made, due to the fact that the uterus was pushed well back and down into the pelvis. A cesarean section was decided on and a normal male child was delivered. In this case I was able to remove

the placenta and membranes completely and to close the abdomen without drainage. The patient recovered uneventfully.

I wish to direct attention to the fact that all patients with extra-uterine pregnancy do not die even after a rupture. Occasional mummified remains of a fetus of one, two or from six to seven months, are found, which had evidently been surrounded by a large hematoma. We have seen two such cases.

Postoperative transfusion is a very important addition to our treatment in cases in which there has been rupture with severe hemorrhage.

Dr. Bull (closing): I am very much gratified at the discussion which this paper has brought out. I think conditions under which we find patients in the community in which we live may sometimes influence our judgment in regard to immediate operation in the case of pulseless patients. I think if we have them all in the hospital it is the thing to do always. If we have them away from hospital facilities and surrounded by people who are not able to appreciate the gravity of the situation, sometimes facing a tragedy which might influence others to refuse surgical aid, possibly it is better to wait until there is a pulse. One patient I had three or four years ago, I was called into the country to see, and I found she had an extra-uterine ruptured gestation sac. I went immediately to town to get the operative material and a nurse, and before I could get the material together the patient had passed away. It takes a little time to get things ready. It is not always wise to transport a patient over a rough road even to a hospital. The cases which I did present were presented with the idea that they represented types outside of the ordinary run of extra-uterine cases. I realize that in large clinics an extra-uterine pregnancy associated with an intra-uterine pregnancy is not extremely uncommon, and yet for one doing general work apart from large institutions, one case may be all that he will see in a lifetime.

POSTGRADUATE STUDY CONDITIONS ABROAD.

A Letter From Vienna.

C. T. BURNETT, M.D., DENVER.

(The following letter, given almost in its entirety, was written by Dr. Burnett from Vienna to a Denver physician friend. The editor has fortunately obtained the privilege of passing its newsy contents on to the readers of Colorado Medicine.)

In the two weeks spent in London I had a good opportunity to observe the work of Lewis and found the time spent there very much worth while. The London hospitals are making an effort to attract foreigners to graduate medical study and to this end the late Sir William Osler organized the Post-Graduate Fellowship of Medicine, which is supposed to correlate all graduate medical work in London. I found the London physicians very courteous and very cordial, but the various hospitals are too far distant from each other and one cannot depend upon finding the man at his post at the scheduled time. I think if one wished to do a long term service in a hospital, he might find London very satisfactory.

I did not go to Edinburgh, as I learned on reaching London that Sir Robert Philip was on the continent. Let me say in this connection that September is not the month to visit England, if you wish to see much medical, as this is the month of vacations.

I stopped one day in Brussels to see Professor Bordet and then through Germany to Austria. I had intended to spend some time in Munich and then attend a meeting in Strasburg, before going to Vienna. From information obtained in Germany, I thought best to omit Munich, as political conditions were quite unsettled there at that time and of all Germany it was the most undesirable place for an American. A German visé was at that time valueless, I don't know how it is now. In the other parts of Germany I passed through, I received every courtesy and had no more difficulty than when traveling in any foreign country. I also omitted Paris on the way in, for I learned by letters from Vienna that I could start my work here October 1st and thought best to begin and do what I wished here and then the other work later.

I found the Wenkebach Klinik situated in a very fine, thoroughly modern hospital building. They complain of poverty, but with the exception of a limited use of x-ray plates quite thoroughly made up for by fluoroscopic examinations, I am unable to see any interference with the normal progress of the work. During the war they were very limited in assistance, because all of these men were in the army, but now they seem to have all they wish. My work in this clinic is mainly on cardiovascular diseases.

There is very large clinical material and everything is done in the way of x-rays, polygraph and electro-cardiograph examinations, that can be done. In addition, there is a tremendous amount of pathologic material of this type here in Vienna, very much better in fact, than I saw in Lewis' clinic in London, although he has now excellent material. His clinic lacks the pathological control which is found here. In the same clinic I have some work with Professor Eppinger, who is rated as one of the best metabolism men in Europe. In another clinic nearby I have some work in internal medicine with Professor Kovacs, who is a very keen diagnostician and whose batting average is very high. This I know because I see the cases that terminate in the post-mortem room. The only work I have outside the Allgemeinen Krankenhaus is with Professor Neumann in the Wilhelminen Spital, where I am seeing some excellent thorax work.

As regards postgraduate medical education, a recent letter from Dr. Frank tells me that he read in a number of the journal of the A. M. A. that Chvostek had resigned and that only two clinics were open. I cannot imagine how such a report could get into the journal, unless there is some organized propaganda directed against the postgraduate medical work here in Vienna. I do not know of a single clinic that is not open. I know that Chvostek has not resigned. I know that most of the old teachers are still here. In the natural course of events in seven years, certain men would retire. Americans are very well treated and certainly accorded as much courtesy as one could reasonably expect in a country with which we had recently been at war. There

are not very many Americans here at the present time. In fact, there are not very many foreigners in the clinics and these are largely from the countries which formerly belonged to the Austrian empire. The best work is given in German, although there are a few courses now being offered in English. There is only one source of dissatisfaction aside from the general living situation and that is regarding fees charged to Americans and other foreigners. Americans are charged in dollars at pre-war rates. Those foreigners whose currency has suffered by virtue of the war are charged less for the same work, in some cases as much as one-twentieth. I believe the English and Hollanders are treated in the same manner that the Americans are, however, the fact that one man in a certain clinic was paying twenty times as much as another man in the same work has occasioned some considerable discussion. I think the university overlooks one point in this situation, and that is that it costs Americans a great deal to get here, whereas the men from Hungary can get here over night and with very little expense. I think there is an argument on both sides, but any American coming to Vienna ought to know the situation. The result of this is that Americans and Hollanders and very few English and Swiss will, if this rule continues, practically support the post-graduate medical education carried on in Vienna. Personally I feel I am very well repaid.

Concerning the general living conditions here, prices are very high for the people living here and the class that is really suffering is the middle class. At the present wages paid, I do not believe the laboring class is entitled to any sympathy. There is also evidence of great wealth; I suppose these people represent war profiteers.

One sees many foreign cars here. The opera and theaters are full and it is quite evident that there is in Austria and in other countries a class of people who have not suffered by the war; but between these two extremes, the middle class of educational and professional people is ground rather hard. When you realize that the crown has depreciated something over one thousand times, you can figure what one of limited means would do, if he cannot increase his earning capacity. The hotels are full and in most of them one is notified, when taking a room, that he cannot have it for more than two weeks. Rooms are hard to get. All of this is because such large numbers of people from central Europe have collected in Vienna. The food is fair, fuel is somewhat limited, although I am quite certain that the situation is better than last winter. The district railway, which is comparable to the Metropolitan in Paris, is not running, for lack of fuel, with the result that the street cars are always crowded. As I live across from the Krankenhaus, this does not bother me very much. Railroad travel in Austria is not pleasant, so I have with one exception stayed in Vienna.

My plans are still indefinite. I want to stay here until the middle or last of January, per-

haps later. If possible I wish to see some of Sauerbruch's work in Munich, then spend about three weeks in Paris.

THE SUBCUTANEOUS METHOD OF VACCINATION AGAINST SMALLPOX.

FRED S. SPEARMAN, M.D., C.M., RIFLE.

The recent outbreak of smallpox of a severe type in Denver and other localities has given rise to considerable discussion as to the best method of vaccinating against this dread disease, and there seems to be much difference of opinion on the subject. The old-fashioned process of scarification is falling into disfavor on account of the bad results that frequently follow its employment: owing to the size of the denuded area, and the traumatism, which is greater than in other forms of vaccination, there is more liability to infection than is the case where the operation wound is smaller. Among the ways suggested to take its place are incision, using either the sharp point of a scalpel or a needle; puncturing the skin with a needle or fine pointed lancet, the so-called endermic method, the instrument penetrating only the superficial layers of the epidermis; the hypodermic method, in which the vaccine is injected either intradermally, that is into but not through the skin, or subcutaneously, meaning beneath all its layers into the underlying tissues. I am laying stress on this latter point, as I have found in talking with other physicians that some of them have confused endermic or intradermal inoculation with subcutaneous, regarding them as the same thing, which is not the case. In addition to the varieties mentioned above some physicians make use of a small chisel, rotating it so as to scrape off the outer layers of skin, while other vaccinators employ a caustic to produce a blister which they puncture, then apply the virus to the raw area; these are simply variations of the types I have before enumerated, however, and teach us nothing new in regard to improved means of smallpox vaccination.

A paper on the subject of subcutaneous vaccination was published in the *Lancet* (London) for August 16, 1919, p. 285, and also in the *American Journal of the Medical Sciences* for November of the same year, by Major J. R. Goodall of the Canadian Army Medical Corps, giving his personal experience with the method. On a number of occasions he had discussed this form of vaccination with a colleague, Dr. Geo. Hume, who had used it for some time in his private practice before entering military service, and they finally decided to give it a tryout. Altogether they inoculated more than six thousand soldiers and children of officers. In addition to this number, men belonging to other brigades were vaccinated by their medical officers in the same way, although Major Goodall does not give any figures. The vaccine used was the ordinary variety contained in capillary tubes, such as is prepared by different makers of the product. The individual dose was from half to three-quarters of the contents of a single tube. The tech-

nic was as follows: the virus was expressed by the rubber bulb into a sterile container, and enough sterilized water added to make one mil or about sixteen minims for each injection. The fluid was then drawn up into a hypodermic syringe, rendered thoroughly aseptic of course, the skin at site of inoculation painted with tincture of iodine, and the needle inserted diagonally and deep enough to penetrate into the subcutaneous tissues. Where a large number were to be treated a syringe with a capacity of 20 mils was used, a fresh needle being attached with each injection. When the vaccination "took" the arm would become swollen and reddened in from two to four days as a rule, the reaction being similar to that following the ordinary methods of vaccination, only that it came on a day or so earlier and was generally not so severe. Instead of a pustule developing, followed by an open sore or ulcer, a lump or nodule would form in the subcutaneous tissues, this disappearing in a few weeks' time. In fine, the reaction was very much the same as that obtained after anti-typhoid inoculation. There were no cases of infection among the thousands vaccinated, which was indeed an unique record, and very few had to lay off duty for more than a few days, the majority experiencing little or no inconvenience.

The advantages of subcutaneous injection are, the rapidity with which a large number of people can be vaccinated; the absence of an external sore, with consequent danger of infection by pathogenic organisms; no unsightly scar is left at the point of inoculation, such as we have often seen where sepsis has developed; the lessened disability as compared with the sequelae of the other methods; children have little or no objection to it, especially the smaller ones; it should be the method of choice among the insane and feeble-minded, as there is no scab to pick at; the percentage of "takes" is higher than that obtained in the incision or scarification methods: in Goodall's experience the failures amounted to only about eight percent—in his own case he had been vaccinated unsuccessfully ten different times, but had a typical take when inoculated by the subcutaneous route; vaccination can be made a clean surgical operation, whereas we know that it is impossible to sterilize the skin where any of the "open" methods are used; lastly we may be able to demonstrate more accurately by this means those who are naturally immune to smallpox.

One objection urged is that there is nothing to show that the subject has undergone successful vaccination, for, although the absence of an unsightly scar can be urged as a distinct advantage, still in many communities a scar is regarded as the only criterion of a successful "take." In examining applicants for life insurance the examiner is required by some companies to report whether the applicant has a mark showing that he has been successfully vaccinated. In either of these eventualities, however, the difficulty can be overcome by furnishing a certificate. It has occurred to me, though, that if subcutaneous vaccination after careful trial demonstrates its superiority over other ways, it

might be possible to add some inert substance such as finely powdered charcoal, say, to the vaccine: this would leave a permanent tattoo mark that one could "show the world." This is merely a suggestion, however, as I have never tried out such a process or heard of anybody else who has. Respecting the objection that there would be greater danger of contracting tetanus or other infections if the vaccine virus were contaminated, I do not think the point is well taken—if the vaccine isn't clean it shouldn't be used in any case, and this objection could also be urged against any of the "puncture" methods, whether endermic, intradermal or what not. Furthermore we know that infection following vaccination is due in practically all cases to faulty technic at the time, or carelessness in failing to keep the parts clean afterwards. Vaccine is now prepared so carefully, the virus being combined with glycerine and various mild antiseptics, that the chances of getting hold of an infected product are reduced to the minimum. If one should happen to obtain virus in which the spores of tetanus were present it seems to me that the danger of inoculating the subject would be about the same in any form of vaccination: B. Tetani is an organism whose growth is favored by the absence of air, and vaccination, even where done by scarification or incision, may be regarded as an anaerobic process—the formation of pustule, scab, etc., produce such a condition.

In looking through the literature I have been unable to find anything on the matter of subcutaneous vaccination with the exception of Major Goodall's article, from which I have drawn largely for this paper. The puncture method was employed by some even in Jenner's time, and French writers favor its use today. Gould and Pyle in their work state that owing to the fact that cowpox virus is so diluted or attenuated by modern methods of manufacture, it isn't as effective where puncture is used. Among the papers on endermic and intradermal vaccination I will mention but two; Wm. S. Walsh, M.D., in the *Maine Medical Journal* for May, 1919, gives his findings and conclusions in about two hundred and eighty cases where he had made use of the former way, while in the *Journal A. M. A.* of August 24th, 1918, is a paper by Lieut. Louis T. Wright, M.R.C., giving his experiences with the intradermal method in two hundred and twenty-seven cases. Both authors obtained a larger proportion of successful results than could be shown by the older forms, more than seventy per cent. Many of their cases had never been successfully inoculated, and as a control Dr. Wright also vaccinated the men at the same time by incision, the results being much in favor of the intradermal process. The objection to either endermic or intradermal vaccination is, however, that an external lesion is produced, which is not the fact when we go by the subcutaneous route.

In my practice at Rifle I tried out the method as advocated by Dr. Goodall, and, although the number of cases was very limited in comparison with his my results were the same. It is well for

the medical profession to be cautious about taking up with new ideas, of course; the fact that such good success was obtained in a series of more than six thousand cases would seem to indicate that the matter is well worthy of careful investigation and trial, though.

News Notes

According to the daily press the town of Orchard with its surrounding territory is without a doctor and is sorely in need of one.

Dr. L. H. McKinnie of Colorado Springs attended the meeting of the Western Surgical Association in St. Louis in the forepart of December. Dr. McKinnie was on the program for a paper.

Dr. G. W. Robinson of Trinidad has been appointed assistant collaborating epidemiologist under the United States Public Health Service.

Dr. R. B. Porter (a former vice-president of the Colorado State Medical Society) is reported to be giving up his location at Fruita and removing to Glenwood Springs where he contemplates making his future home.

Dr. Edwin L. Apperson of Denver has been appointed local consul of the Republic of Panama.

Mention was made in these columns some weeks ago of a petition circulated in Colorado Springs asking the city council to repeal the compulsory vaccination ordinance applying to school children. The El Paso County Medical Society was instrumental in preventing the repeal of the ordinance at that time but has since unanimously voted to ask the council to submit the question to a popular vote at the special election on January 24. The antivaccinationists had demanded this election but are now trying to postpone it. In view of the prevalence of smallpox, their reasons are obvious.

The new officers of the El Paso County Medical Society are: E. L. Timmons, president; J. J. Mahoney, vice-president; Omer R. Gillett, treasurer; C. L. Richmond, secretary; C. S. Stough and G. B. Gilbert, delegates.

The result of the Mesa County Society's annual election of officers is as follows: G. C. Cary, president; W. V. Watson, vice-president; Everett Munro, secretary; H. S. Henderson, delegate.

New officers elected at the annual meeting of the Larimer County Medical Society are as follows: T. C. Taylor, president; W. W. Yates, vice-president; R. W. Morrish, secretary; S. C. Halley, treasurer; E. Stuver, censor; W. A. Kickland and W. W. Yates, delegates; E. L. Sadler, R. J. McDonald and W. P. Gasser, alternates.

The Pacific Coast Association of Anesthetists will hold its first Scientific Meeting at Yosemite Park, Monday and Tuesday, May 15-16, 1922, in conjunction with the meeting of the Section on Anesthesiology of the California State Medical Society. A splendid scientific program of pertinent papers is said to be in the making

for this occasion and the sessions will offer those in attendance every opportunity to acquire an intimate knowledge of what is latest and best in the science and practice of anesthesia.

The Oklahoma State Medical Association will hold its annual meeting in Oklahoma City May 16-17-18.

Dr. Walter L. Bierring of Des Moines, Iowa, has been signally honored by the offer of an honorary membership in the Royal College of Physicians of Edinburgh. It is understood that this is the first honorary membership conferred by that body since 1809. The letter of notification to Dr. Bierring reads as follows:

"Royal College of Physicians, Edinburgh, Nov. 3, 1921.—Dr. Walter Lawrence Bierring, C-o., Equitable Building, Des Moines, Ia., U. S. A.—Dear Sir: I have the honor to inform you that the Royal College of Physicians of Edinburgh, at an extraordinary meeting held on November 1, unanimously resolved to offer you the honorary membership of the college.

"This offer of honorary membership has been made by the college to mark its sense of your distinguished services in connection with reciprocity between your country and ours in matters of medical education and I hope to hear from you that you are willing to accept it. I am, yours faithfully,

"J. S. FOWLER, M. D.,

"Fellow and Secretary."

The first examination of the National Board of Medical Examiners under the new plan, in Parts I and II, will be held as follows:

Part I, February 15, 16 and 17 (1922), inclusive.

Part II, February 20 and 21 (1922), inclusive.

Applications for examination should be received no later than January 15, 1922. Application blanks and Circulars of Information may be had by writing to the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

Dr. J. N. Hall spoke before the Salt Lake County Medical Association on December 13 upon the subject, "The Need of More Careful Physical Examination in Diagnosis." On December 14, he spoke by request at the annual meeting of the Weber County Medical Society, at Ogden, Utah, upon "The Diagnosis of Appendicitis."

Dr. J. L. Mortimer of Denver left on January 14th for a month's pleasure trip to California.

The records of the secretary of the Colorado committee of the American Society for the Control of Cancer show that during cancer week sixty-four lectures were delivered in Denver with a total attendance of 14,907 while 141 lectures were delivered in the state to an audience of 25,356.

The editor has on file the names of three doctors in smaller towns of Colorado who wish to sell out. In two instances the doctors desire only enough to pay for their homes and equipment.

Dr. Henry S. Cooper of Denver has removed

from the Commonwealth Building to 436 Metropolitan Building where he will share offices with Dr. L. H. Wade.

Dr. Lucy L. Passover of Denver was married January 4, to Mr. Theodore Earle.

The officers of the Medical Society of the City and County of Denver elected for the ensuing year are as follows: Philip Hillkowitz, president; A. G. Case, vice president; C. F. Hegner, secretary; C. G. Hickey, treasurer; W. H. Crisp, trustee; H. R. McGraw, member board of censors.

Attention is directed to the special announcement of the Windsor Farm Dairy on the inside back cover page. This company has been a consistent advertiser in Colorado Medicine and deserves physicians' support.

Wanted: Position or assistantship by physician; general, laboratory and general surgical experience. Married. Protestant. Salary not as essential as congenial living conditions. Qualified pharmacist. Consult the Editor.

Medical Societies

PUEBLO CLINICAL AND PATHOLOGICAL.

The annual meeting of the **Pueblo Clinical and Pathological Society** was held Wednesday evening, December 14, at Hotel Vail. A ten-course dinner was served to fifty. The election resulted as follows:

President, Fred M. Heller; vice president, John Schwer; secretary-treasurer, H. M. Thompson; historian, Wilbur Lucas; recorder, F. E. Wallace.

The retiring secretary-treasurer made his yearly report. This showed a flourishing condition of the society, with about \$150 on hand.

The recorder made a statement that no reports would be sent to "Colorado Medicine" unless type-written.

New members elected were as follows: T. A. Stoddard, George Meyers, E. H. Brown, W. F. Singer, C. N. Caldwell, Richard Hayes. The election of these men made the membership full.

The program for the January meeting will be filled with papers by Snedec, Epler, Finney and Craighead.

The retiring president gave a paper entitled "Chronic Carbon Monoxid Amblyopia", with report of a case.*

Discussion was entered into by J. J. Pattee, J. C. Epler, F. M. Heller, W. S. Johnston, F. E. Wallace, C. W. Thompson and John Schwer.

The incoming president, Dr. Heller, made a plea for cooperation for the coming year and spoke very enthusiastically and feelingly of the disarmament meeting. He outlined the procedure necessary for disarmament and spoke particularly of the needs of all in doing away with poisonous gases, and said that in order to have peace each must act in good faith, and that we could not stand for any substitution for good will.

Adjournment took place at 1 a. m.

F. E. WALLACE, Recorder.

*The paper will appear in full in a later issue of Colorado Medicine.—Ed.

MEDICAL COLORADOANA

(Concluded.)

WELLER, MILES, Denver:

Preparation and Treatment Before, During and After Normal Labor. Vol. 27, 1907, p. 213.

WETHERILL, H. G., Denver:

A Criticism of Modern Training School Methods from the Standpoint of the Surgeon. Vol. 28, 1908, p. 269.

The Open Air Treatment in Skin Grafting. Vol. 26, 1907, p. 346.

Hysterectomy for Uterine Prolapse. Vol. 17, 1898, p. 385.

The Use and Abuse of the Uterine Curette. Vol. 17, 1897, p. 119.

Raynaud's Gangrene. Vol. 29, 1910, p. 269.

Delayed Union of Fractured Limbs. Vol. 30, 1911, p. 259.

Fleming's Skin Stitch. Vol. 31, 1912, p. 301.

Remarks Before the Western Surgical Association, Dec. 20-21, 1912. Vol. 32, 1913, p. 494.

Practical Points for Motoring in Europe. Vol. 33, 1914, p. 342.

WETZEL, D. E., Denver:

Psoriasis. Vol. 10, 1891, p. 319.

A Case of Herpes Zoster Complicated with Erysipelas and Gangrene. Vol. 11, 1891, p. 165.

A Study of a Series of Smallpox Cases During an Epidemic Thereof. Vol. 12, 1892, p. 156.

WHEATON, CLARENCE L., Denver:

A Few Etiological Factors in Displacements of the Uterus. Vol. 21, 1901, p. 181.

WHITE, MARK, V. M. D., Denver:

Diseases of the Cow that May Affect the Wholeness of Milk. Vol. 29, 1909, p. 106.

WHITEHEAD, W. R., Denver:

A Series of Lectures on Diseases of the Genito-Urinary System.

1. Gonorrhoea. Vol. 1, 1882, p. 1.

2. Prostatorrhoea, Prostatitis and Cystitis, p. 7.

3. Stricture of the Urethra, p. 117.

4. Treatment of Stricture, p. 126.

5. Hypertrophy of the Prostate, p. 233.

6. Stone in the Bladder, p. 242.

7. Treatment of Stone in Bladder, p. 363.

8. Hydrocele and Varicocele, p. 432.

9. Orchitis, p. 439.

10. Impotence and Sterility in Men, p. 509.

11. Chancroid, p. 516.

Case of Malignant or Fatal Jaundice, with Remarks. Vol. 1, 1882, p. 258.

Address Delivered at the Fourteenth Annual Convention of the Colorado Medical Association. Vol. 4, 1884, p. 129.

Rupture of the Posterior Tibial Muscle. Vol. 5, 1885, p. 169.

Three Hundred Consecutive Cases of Hemorrhoids Cured by Incision. Vol. 8, 1888, p. 95.

The Necessity of Free Counter Openings, and the Use of Balsam of Peru in the Treatment of Suppurating Wounds. Vol. 11, 1891, p. 137.

WHITMORE, E. A., Leadville:

Observations on the Effects of Great Altitudes. Vol. 18, 1899, p. 537.

Thymic Cases. Vol. 33, 1913, p. 3.

WHITNEY, HERBERT B., Denver:

Physiological Albuminuria. Vol. 8, 1899, p. 145.

- Pleuritic Effusion in Children: With Two Cases. Vol. 10, 1890, p. 161.
- Two Cases of Abdominal Tumor. Vol. 13, 1893, p. 214.
- Treatment of Cerebrospinal Meningitis. Vol. 26, 1906, p. 226.
- Treatment of Whooping Cough. Vol. 27, 1907, p. 108.
- Purulent Pericardial Effusion. Vol. 27, 1908, p. 320.
- WICKS, E. G., Denver:
Gonorrhoea in Women. Vol. 10, 1891, p. 234.
- WIEST, N., Denver:
Meddlesome Midwifery. Vol. 11, 1891, p. 185.
- Treatment of Scarlet Fever. Vol. 25, 1906, p. 395.
- Treatment of Whooping Cough. Vol. 27, 1907, p. 112.
- WILDER, J. A., Denver:
Treatment of Fever in Pulmonary Tuberculosis. Vol. 25, 1906, p. 673.
- WILLIAMS, AUBREY H., Denver:
Excision of the Gasserian Ganglion, with the Use of a Wooden Plug for the Control of Hemorrhage. Vol. 26, 1907, p. 348.
- WILLIAMS, H. L., Flagler:
A Case of Nephritis. Vol. 33, 1913, p. 5.
- WILSON, FLETCHER, Denver:
Interesting Case of Exostosis of External Auditory Canal. Vol. 4, 1885, p. 273.
- WILSON, MILO A., Denver:
A Review and Remarks on Skin and Venereal Diseases. Vol. 1, 1882, p. 34.
- Report on Progress in Diseases of Children. Vol. 1, 1882, p. 203.
- Miscarriage; Severe, Prolonged for Nearly Four Months; Unrecognized Pregnancy; Possibility of Twins; Recovery. Vol. 1, 1882, p. 256.
- Obituary. Vol. 2, 1883, p. 26.
- WILSON, W. E., Denver:
Teratology; Acephalic Monsters. Vol. 1, 1882, p. 145.
- WINSOR, L. CLARK, Denver:
Pathology of Typhoid Fever. Vol. 5, 1885, p. 175.
- WOOD, E. L., Pueblo:
The Germ Theory. Vol. 15, 1895, p. 181.
- WOOD, L. H., Denver:
Pneumonia Occurring in the Consumptive. Vol. 3, 1884, p. 321.
- Phthisis Pulmonalis; How Affected By the Climate of Colorado, and What Are Proper Cases to be Sent Here. Vol. 3, 1884, p. 368; Vol. 4, pp. 1, 33.
- Is the Labor of the Respiratory Muscles Lessened by a Diminished Atmospheric Pressure? Vol. 4, 1884, p. 41.
- The Relations of Micro-organisms to the Etiology of Certain Diseases. Vol. 4, 1885, p. 289.
- The Management of the Female Perineum During Labor. Vol. 5, 1886, p. 369.
- The Treatment of Consumption in Colorado. Vol. 6, 1886, p. 208.
- Seeing Health in Colorado. Vol. 18, 1899, p. 535.
- WOODING, B. F., Denver:
Plaster Paris Jacket: Its Indications and Applications. Vol. 14, 1894, p. 213.
- WOODWORTH, R. G., Pueblo:
Respiratory Tract in Young Children. Vol. 18, 1899, p. 445.
- How to Effect the Expulsion of the Placenta After Child-birth. Vol. 18, 1899, p. 553.
- Typhoid Fever Aborted. Vol. 20, 1901, p. 385.
- Exegesis of Medical Ethics. Vol. 21, 1902, p. 465.
- WORK, HUBERT, Pueblo:
Mountain Fever. Vol. 12, 1893, p. 645.
- Does Prolonged Residence in Colorado Make Women Nervous? Vol. 13, 1893, p. 209.
- The Uric Acid Diathesis. Vol. 14, 1894, p. 201.
- Toxic Causes of Insanity. Vol. 19, 1899, p. 109.
- Home Treatment of Insanity. Vol. 21, 1901, p. 209.
- Chorea Insaniens; Report of a Case. Vol. 22, 1903, p. 323.
- WORTHINGTON, A. K., Denver:
A Rare Case of Bullet Wound of the Bladder. Vol. 12, 1893, p. 482.
- WORTHINGTON, R. H., Hugo:
Report of a Case of Malarial Fever Occurring in Colorado. Vol. 4, 1885, p. 303.
- WORTHINGTON, R. H., Denver:
Colotomy. Vol. 11, 1891, p. 111.
- Obituary. Vol. 11, 1892, p. 642.
- YOAKUM, FINIS E., Denver:
Alcoholics in the Practice of Medicine. Vol. 13, 1894, p. 372.
- ZULCH, GUSTAVUS J., Denver:
A Specific Formula for the Control and Arrest of Tuberculosis. Vol. 33, 1914, p. 392.
- [The publication of Medical Coloradoana in Colorado Medicine is discontinued with this issue. The material so far published, with new material to be gathered, will be incorporated in a volume now being compiled by the Colorado State Medical Society in commemoration of its fiftieth anniversary.—Ed.]

Book Reviews

The Surgical Clinics of North America. August, 1921. Volume 1, No. 4. Chicago Number. 297 pages. Paper, \$12 net; cloth, \$16 net. Philadelphia and London: W. B. Saunders Company.

For August, 1921, The Surgical Clinics of North America are edited in Chicago, and remind one very strongly of the old Chicago Clinics. The number is up to the usual high standard, contains a great deal of valuable information, and presents its subjects in a much more interesting and readable form than the usual type of medical literature.

Local anesthesia in major abdominal surgery is explained in cases presented by Bevan and Kanavel, while Ochsner operates a thyroid case by the same method.

Laminectomy for various conditions is demonstrated by both Andrews and Kanavel. Indications and results are considered as well as technique.

In one of the best articles in the number, Strauss takes up amputation of the thigh, explaining in detail latest ideas as to flaps and treatment of bone and nerve. He also describes in detail the best after-treatment, which has been designed to give an early weight-bearing stump.

Syphilis of the stomach is demonstrated by the Gatewoods in a typical case, and the whole subject of symptomatology and treatment is considered.

While these are perhaps the outstanding contributions to this number, there are twenty other cases, many very unusual and many very instructive. Some of these may be of greater interest to some surgeons than those mentioned. The number is certainly worth a perusal and gives a wide choice of subjects.

G. B. P., Jr.

Pulmonary Tuberculosis. A Handbook for Students and Practitioners. By Edward O. Otis, A.E., M.D.,

Professor of Pulmonary Diseases and Climatology, Tufts College Medical School, Boston; Formerly Visiting and Consulting Physician to the Massachusetts State Sanatorium (Rutland); Fellow and Former President of the American Climatological and Clinical Association; Corresponding Member of the International Tuberculosis Institute; Consulting physician to the Boston Dispensary, Tuberculosis Department; Major, M. R. C., U. S. A. Second Edition. Boston, W. M. Leonard, 1920.

This is a modest little treatise which offers very little that is new, but presents much in a very attractive form. In a brief ten pages are presented most of the essentials of the anatomy of the thorax and its contents, with many useful landmarks. Practically no attention is paid to the lymphatics of the neck, thorax and abdomen, an omission which to the reviewer seems hardly warranted in the light of recent conceptions.

Under "Diagnosis," percussion and auscultation signs are very scantily presented.

This work draws very freely from the publications of Lawrason Brown, Colonel Bushnel, Major Stall, Minor and of the National Association.

C. T. B.

A Primer for Diabetic Patients. A Brief Outline of the Principles of Diabetic Treatment, Sample Menus, Recipes and Food Tables. By Russell M. Wilder, M.D.; May A. Foley and Daisy Ellithorpe, Dieticians, the Mayo Clinic. 12mo of 76 pages. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$1.50 net.

This is a small but satisfactory outline of the principles of diabetic treatment. The book has been written for the use of patients, since the need for a brief introduction underlying the dietary treatment of diabetes was felt by the authors. The text is clear and the methods discussed are those that are well recognized. Sample menus, recipes and food tables add to the usefulness of this little book. To physicians who desire to become somewhat familiar with this form of therapy this book may be recommended.

J. L. M.

Nostrums and Quackery. Articles on the nostrum evil, quackery and allied matters affecting the public health reprinted with or without modifications, from the Journal of the American Medical Association, Volume II, illustrated, 832 pages. Published by the American Medical Association, 535 N. Dearborn St., Chicago, Ill. Price, \$2.

Ten years ago the American Medical Association published the first edition of the first volume of this book. A year later a second and enlarged edition of the first volume was issued. Since that time The Journal of the American Medical Association has published, week by week, articles on the nostrum evil, quackery and allied matters affecting the public health. All this material has been collected and appears in the present volume.

The present volume is a veritable encyclopedia of information on the subject it treats. The book contains nineteen chapters. The titles of some of these are: "Alcohol, Tobacco and Drug Habit Cures," "Consumption Cures," "Cosmetic Nostrums," "Deafness Cures," "Epilepsy Cures," "Female Weakness Cures," "Nostrums for Kidney Disease and Diabetes," "Medical Institutes," "Miscellaneous Nostrums," "Obesity Cures," "Quackery of the Drugless Type" and "Tonics, Bitters, Etc."

This partial list of chapters gives but a poor idea of the vast fund of information contained in the book. To make the volume still more valuable it contains an index of twenty-two pages, two columns to the page, which includes references to every article appearing in the first volume of "Nostrums and Quackery" as well as to all articles in the present volume.

A Treatise on Cataract; by Donald T. Atkinson, M.D., etc., etc. With original illustrations. New York: The Vail-Ballou Company.

This little work is very attractive in general appearance, especially as regards the elegance and abundance of illustrations. There are twenty-nine of these, all apparently by the author, and mostly reproduced from original photographs. They are excellently printed on heavy enamel paper. On the whole they are by far the most useful feature of the book, the majority of them being well adapted to their purpose, although one or two have no apparent reason for existence. It is unfortunate that for the sake of general appearance many of the illustrations have been placed remote from the text to which they relate.

That part of the text which is devoted to actual description of the cataract operation is well pre-

pared. There are a number of rather full but profitable quotations from such well known authorities as Beard and De Schweinitz. The introduction concerning the history of the cataract operation is not very well done. There are some evidences of careless editing, and the text is unfortunately marred in a number of places by carelessness of diction or even by definite inaccuracies in the use of words. Thus the author employs the word "mitigate" where he means to say "militate". The paragraph with regard to the incision on the left eye, on page 79, contradicts a suggestion made under figure nine that lack of ambidexterity implies clumsiness.

The most annoying feature of the whole work is the table of contents, which has the appearance of having been prepared by an extremely green stenographer. Instead of quoting the section titles as they occur in the text, the words of these titles have been fantastically rearranged. For example, while the whole book is about cataract, and special points would necessarily be looked for under other words than "cataract", such subjects as secondary cataract, juvenile cataract, accidents in cataract operations, and history of the cataract operation have, by rearrangement of the titles, all been introduced by the word "cataract" in the table of contents. A similar criticism is effective with regard to such titles as "Dislocation of the Crystalline Lens" (introduced by "Crystalline"), "Dressing of the Eye Following Extraction" (introduced by "Extraction"), "Conditions Contraindicating Operation" (introduced by "Operation"), and the three titles relating to causes, diagnosis, and symptoms, all of which appear in the index under "Senile Cataract".

W. H. C.

The Medical Clinics of North America (Issued Serially, one number every other month) Volume 5, Number 1. Chicago Number. July, 1921. Octavo of 273 pages. Paper, \$12.00 net; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

The nineteen articles in this number of The Medical Clinics of North America, deal with a large variety of subjects with supplementary illustrative cases in most instances.

The articles, "Gallop Rhythm", by Dr. Arthur R. Elliott; "Spasmophilia", by Dr. Julius H. Hess; "Scurvy", by Dr. James G. Carr, give evidence of careful study and are very interesting.

Dr. Walter W. Hamburger enters a much disputed field, with his article on "The Administration of Digitalis in the Presence of Certain Acute Infections". He brings forward certain evidence which tends to contraindicate digitalis therapy in acute infections.

The endocrine glands and their anomalies furnish subjects for two more articles—one by Dr. Peter Bassoe, on "Acromegaly, Gigantism and Dwarfism"; the other by Dr. Carey Culbertson, on "The Use of Endocrines in the Treatment of Certain Gynecologic Disorders".

On the whole the Chicago number brings out many detailed points in diagnosis and treatment and presents several very interesting cases.

T. D. C.

History of Medicine, with Medical Chronology, Suggestions for Study and Bibliographic Data; by Fielding H. Garrison, M.D., Lt.-Colonel, Medical Corps, U. S. Army, Surgeon General's Office, Washington, D. C. Third Edition, Revised and Enlarged. Octavo of 942 pages with 257 portraits. W. B. Saunders Company, Philadelphia and London, 1921. Cloth, \$9.00 net.

The appearance of a third edition of Garrison's History of Medicine within eight years is a gratifying evidence of the increasing interest in cultural medicine and the cordial reception this excellent work has received. In this revised and enlarged edition a careful review has been made of the newer findings of modern students in the various departments of medicine and much new matter has been added; as, in the history of pediatrics, dentistry, public hygiene, military medicine, medical lexicography; the earlier medical education in the United States, and Chinese medicine; the recent medicine of the Japanese, Spanish and Latin-Americans; and the medical work of the armies in the European war. All this is stated in a satisfactory manner yet so tersely that but few pages have been added and the book remains of a size easily handled.

Too much praise cannot be accorded the author for the completion of this monumental work, the only treatise on this subject written in the English language that is more than a mere synopsis. The scope of the work covers the history of medicine from the earliest historical period to the present day with a marvelous attention to detail

in all its various sections, and gives a clear review of origins and developments of the many advances made in the scientific study of medicine, with short sketches of the men most instrumental in promoting its progress. The book gives evidence of extensive reading with a sound judgment by a man of broad general culture with an intimate knowledge of medicine and its bibliography and a wide acquaintance with classical and collateral literature.

This History of Medicine is a work which we cordially recommend to all medical men as one not only of deep interest but of lasting value to every physician who reads it, and it should be kept for handy reference by all, or on their night tables for perusal when at leisure.

W. A. J.

Modern Italian Surgery and Old University of Italy.

The recent book of Dr. Paolo De Vecchi on this subject is very remarkable. Dr. De Vecchi, seventy-four years old, was a private physician of the royal family of Savoia in Turin, Italy, when he first came to America, forty-one years ago. Then he was called to San Francisco for an orthopedic operation, and he remained there, practicing surgery with great success, until 1905. In 1914 he published a book in Italian, "Notes and Observations on the Surgery and the Surgeons of the U. S. of A."

Now in turn he has given in English a sketch of the progress of Italian surgery and a brief history of the old universities of Italy. The preface is written by George D. Stewart, M.D., president, New York Academy of Medicine.

This work is dedicated to the American doctors, who know perhaps very well all about the surgery of France, of England, of Germany, but, mostly, know very little about the achievements of Italy in medicine and surgery, especially during the last war.

I remember that two years ago, at the Third Interallied Medical Congress for Disabled Soldiers in Rome, one day I had charge to accompany the American medical officers and, talking with them, I noticed that they seemed really surprised at what Italy had done, and on that special occasion, at the marvelous applications of the mechanical prosthesis with muscular attachment.

G. P.

The Surgical Clinics of North America (Issued serially, one number every other month). Volume I, Number 5 (The Mayo Clinic Number). 296 pages, with 163 illustrations. Per clinic year (February, 1921, to December, 1921), paper, \$12 net; cloth, \$16 net. Philadelphia and London: W. B. Saunders Company.

This is the Mayo Clinic number of the Surgical Clinics of North America. As would be expected, it contains many excellent articles, though not as much actual clinical material as usual. We miss the usual atmosphere of the operating room, the feeling that the patient, whose history has just been read, is being demonstrated and operated before us.

The leading contribution is easily that of Lockwood's on chest surgery. Few men in this country have had his experience in operative thoracic work. He describes the latest procedures and the possibilities in this comparatively undeveloped branch of surgery. Also particularly worthy of mention is Masson's report of twelve retroperitoneal lipomata, an interesting study of an unusual condition. Hedblom's clinic on tuberculous pericarditis gives an exceptional insight into surgery of the pericardium.

Head surgery is covered in a rather elementary manner by Adson. Wilson discusses malignancy of the thyroid from a pathologic standpoint. Gastric surgery is touched on by Balfour, who gives again his cautery technic, while Charles Mayo discusses gastrojejunocolic fistulas. Other abdominal conditions are discussed by Mann and Hunt, while William Mayo writes very interestingly on splenic syndromes. Judd and Hunt have some good contributions on genitourinary surgery. Some orthopedic subjects are well presented by Henderson and Meyerding.

On the whole, the number is a little disappointing. Many of the articles are nearly duplicates of some recently published. With a few notable exceptions, the whole gives an impression of little new work, but rather a re-presentation of the Mayo productions of the last year or two.

G. B. P., Jr.

NEW AND NONOFFICIAL REMEDIES.

During December the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

The Abbott Laboratories: Neocinchophen-Abbott.

Powers-Weightman-Rosengarten Co.: Mercury and Potassium Iodid—P. W. R.

Schimmel and Co.: Oil of Cypress—Schimmel and Co.

E. R. Squibb and Sons: Liquid Petrolatum—Squibb; Food Allergens—Squibb; Pollen Protein Allergens—Squibb; Animal Epidermal Extract Allergens—Squibb; Bacterial Allergens—Squibb.

Winthrop Chemical Co.: Chaulmestrol.

Nonproprietary Article: Chaulmoogra Oil.

Change of agency: Cresatin.—The Council has directed that the description of Cresatin (New and Nonofficial Remedies, 1921, p. 94) be revised to show that the name has been changed to Cresatin—Dr. N. Sulzberger, and that it is manufactured by the Intravenous Products Company of America, Inc.

Defective Eyesight in School Children.

Out of 100,000 pupils in the New York public schools who failed to be promoted each year, 50,000 have defective eyesight, 25,000 are suffering the humiliation of being "left-backs" simply because they are desperately in need of glasses.

The Junior Red Cross has established a \$5,000 fund to aid parents in buying glasses for their children. Already 200 children have been given "new eyes", according to a report issued by a local chapter of the Red Cross. The fund is self-sustaining, in that the children pay back the cost of their glasses on the installment plan.—Eyesight Conservation Council of America.

A WORD TO THE MEMBERS OF THE COLORADO STATE MEDICAL SOCIETY.

You know that this journal is the official organ of your Society. You know that \$200 of your dues go as a subscription to the journal. Do you know also that that amount is considerably less than the journal costs? That is the case. If Colorado Medicine were run without advertising the deficit at the end of the fiscal year would be far more than could be met from the funds available; the possibility of getting along with a minimum deficit depends entirely upon the amount of advertising carried. Every bit of this material is censored carefully by the Publication Committee and not an ad is accepted which does not conform to the standards of advertising set by the Journal of the American Medical Association. No proprietary remedies are put before you which are not "Council-passed"; no sanatorium, apparatus, or method of treatment is advertised which is not considered entirely ethical. You are protected in this way, and should remember that because of this rigid censorship many ads are refused which if accepted would swell the receipts of the journal considerably.

You can help to keep Colorado Medicine clean by patronizing the legitimate concerns which patronize your journal. Advertisers are keen observers of results, and they advertise for results, and results only. If you will support them, they will continue to support you. If you do not, the journal will suffer as a consequence in both size and character.

THE EDITOR.

THE COLORADO STATE MEDICAL SOCIETY.

(Incorporated November 1, 1888.)

The next meeting will be held in Colorado Springs.

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 District 3. L. E. Rupert, Florence.....1923
 District 4. W. W. Crook, Glenwood Springs..1926
 District 5. L. L. Harriman, Alamosa.....1922

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Boulder County—First and third Thursday; secretary, Walter K. Reed, Boulder.

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Otero County—Second Tuesday of each month; secretary, G. E. Calonga, La Junta.

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San Juan Medical—Time of meeting (not reported); secretary, John C. Darling, Durango.

San Luis Valley—Time of meeting (not reported); secretary, L. W. Soland, Alamosa.

Teller County—(Not reported).

Weld County—First Monday of each month; secretary, Thos. E. Atkinson, Greeley.

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Colorado Medicine

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Editorial Comment

STATE MEETING PLANS.

The date for the annual meeting of the Colorado State Medical Society has been tentatively set for October 3, 4, 5; the first meeting of the House of Delegates to be on the evening of October 2. In all probability this date will be definitely chosen. Members of the society who desire to read papers at the meeting should communicate with Dr. T. E. Carmody, Chairman of the Committee on Scientific Work, Metropolitan building, Denver, and at least apprise him of their desire to take part in the program. As soon as possible the title of the proposed paper, with a short abstract of its contents, must be furnished. Further plans for the meeting will be announced as made.

ANTIVIVISECTION.

An Act to Prohibit Injurious, Dangerous or Painful Experimental Operations or Administrations Upon Human Beings or Dumb Animals Except to Relieve or Cure Them; Making Exceptions of Persons Consenting to Such Experiments and Providing Penalties for Violations of the Act.	YES	
	NO	

Next November the Colorado voter will read the foregoing caption on his ballot and will vote "yes" or "no" on his death warrant. The ballot title makes no mention of any undertaking arrangements, but appeals to the spirit of mercy. For this reason the unwary voter will be at a disadvantage.

The bill is the work of the antivivisectionists. Few physicians are aware of the propaganda conducted by these people, for they concentrate their fire on one or two localities; hence other communities are oblivious till they themselves are attacked. There are ten societies of these fanatics in the United States, and one of the newest is the Society for the Abolition of Vivi-

section, with "headquarters" at Postoffice Box 424, Denver, Colo.

What is this Denver society? It is a little bureau that is republishing the literature of the New York Anti-Vivisection Society and other organizations. And the New York Anti-Vivisection Society? It is an organization that makes a pretense of mercy and human kindness in order that it may wage propaganda against the medical profession. One of the society's pamphlets is written by Eugene Christian, president of the National Association of Drugless Practitioners, and is entitled "Shall We Let the Doctors Enslave Us?" The article is a vilification of the "Drug Doctors". The other pamphlets of the New York society are equally amazing, for many of them have no reference to vivisection. Here-with a few of the titles: "Complete Failure of Medicine in the World War", "Dangers in the Use of Vaccines and Serums", "The Folly and Failure of Serums and Vaccines", "The Utter Failure of the Old School Serum-Vaccine Method Versus the Glorious Record of Drugless Doctors in the Influenza Epidemic", "What Would Have Happened Without Osteopathy?", "What Would Have Happened Without Chiropractic?"

It is clear that the parent society of New York is a publicity bureau for the medical underworld. Its purpose is to demolish scientific medicine and supplant it with a system of two-dollar rubs.

The aim of the Colorado bill is to abolish animal experiments and administrations with or without anesthetics. With the passage of such a bill the advance of scientific medicine would cease. Nothing more would be done to combat insanity, and the Psychopathic Hospital—which the people have recently voted—would be useless. There would be no more research in cancer and tuberculosis, and our highest hope would be to die painlessly of these diseases. Yet this is not all, for medicine would not merely cease to advance; it would regress. It would be illegal to manufacture smallpox vaccine or diphtheria antitoxin, and we would make coffins instead.

In contemplating such a situation one naturally feels that the thing is impossible. It is true that the bill would not pass if the electorate were informed of the issue, but it will be misinformed by a propaganda of unbelievable deceit and malice. The Denver Society for the Abolition of Vivisection issues a pamphlet entitled "Black Art Vivisection", and this pamph-

let treats of the following topics: "Japanese Vivisection 400 Charity Patients in New York"; "Kill Girl at Free Clinic"; "Poor Children Blinded by Vivisection"; "Human Beings Must Be Vivisected", etc.

This campaign of frenzied falsehood is already in progress, and it can be offset only by an educational campaign that will appraise people of the achievements of scientific medicine. They must know that smallpox, typhoid fever, plague, yellow fever, hydrophobia, diphtheria and countless other diseases have been conquered, and that scientific medicine has added ten years to the average human life in the past century. Farmers must know of the wonderful achievements in the conquest of foot and mouth disease, lumpy jaw, rinderpest, Texas fever, sheep scab, splenic fever, pleuro-pneumonia, glanders, hog cholera, etc. The citizen must learn that animal experiment prevents diseases in domestic animals that would cost a billion dollars a year; and that such losses, if incurred, would lead to famine.

The campaign of education must be no casual thing, for otherwise the voter will write "yes" on his death warrant. The responsibility for this campaign of enlightenment should not rightly fall upon the doctor, for it is the welfare of the whole community that is at stake. But unfortunately the doctor is burdened with many public duties, and this is inevitably one of them.

It remains to point out that the antivivisectionists have already taken a grossly unfair advantage of the voter, and that this abuse must be remedied. The citizen is required to vote for or against "An Act to Prohibit Injurious, Dangerous or Painful Experimental Operations or Administrations Upon Human Beings or Dumb Animals Except to Relieve or Cure Them." This ballot title is prejudiced and bitter. The title of the proposed law, as approved by the secretary of state, is "An Act Concerning Experimental Operations or Administrations Upon Human Beings or Dumb Animals." In justice to everybody concerned, the ballot title should be no more prejudiced than the title of the act itself.

C. S. B.

COPY OF THE ANTIVIVISECTION BILL

For the enlightenment of the profession, the bill which it is proposed to initiate for popular vote in the fall is here reproduced:

AN ACT CONCERNING EXPERIMENTAL OPERATIONS OR ADMINISTRATIONS UPON HUMAN BEINGS OR DUMB ANIMALS.

Be It Enacted by the People of the State of Colorado:

Section 1. It shall be unlawful to make any injurious or dangerous or painful experiment or experimental operation or administration or any dangerous or injurious or painful exhibitory or illustrative operation or administration upon or to any human being or any dumb animal either with or without the use of anaesthetics except for the purpose of relieving or curing such person or dumb animal: Provided, however, that a person over the age of sixteen years may consent to such experiment, operation or administration upon himself or herself and in the case of persons under the age of sixteen years the parents or those standing in the parental relation may consent thereto and in cases of such consent the provisions of this Act shall not apply. For the purposes of this Act the word injurious, dangerous and painful shall be held

to include any experiment, operation or administration which may reasonably be expected to do injury to or endanger or cause pain or suffering to or in any part of any organ of the person or dumb animal so experimented or operated upon or administered to either at or during the time of such experiment, operation or administration or as an after effect or result thereof.

Section 2. Any person violating any of the provisions of this Act shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than one hundred dollars nor more than one thousand dollars or by imprisonment in the county jail for not less than ten days nor more than six months or by both such fine and imprisonment in the discretion of the court. In case any defendant after conviction shall again violate any of the provisions of this Act for such second offense he shall upon conviction be punished by a fine of not less than two hundred and fifty dollars nor more than one thousand dollars or by imprisonment in the county jail for not less than ninety days nor more than one year, or by both such fine and imprisonment in the discretion of the court.

(The Secretary of State, Attorney General and Reporter of the Supreme Court do hereby designate and fix as the ballot title and submission clause to the proposed initiated measure herein the following:)*

FACTS TO TELL ABOUT VIVISECTION.

The people of Colorado will probably be confronted at the fall election with an initiated measure for the prevention of animal experimentation. This will strike at the foundation of research work in Colorado and if carried would prevent animal experimentation at the new medical school. Physicians do not need to be convinced or even reminded of the benefit to medicine from the use of animals in experimental work, but they do need to have it forcibly impressed upon them that if they take no cognizance of this movement the public may believe the untruthful statements and extravagant "illustrations" in the propaganda already prepared and probably soon to be distributed by the sponsors of the bill—a bill which is said even to emanate from a bureau at the State Capitol!

Aside from any organized effort which the profession might make it is possible for physicians in their daily contacts to give the public much information as to the truth about vivisection. For their benefit the following list of accomplishments through animal experimentation as originally compiled by our Nestor of Surgery, W. W. Keen, is here reproduced:

The Achievements of the Friends of Animal Experimentation†

1. They have discovered and developed the antiseptic method and so have made possible all the wonderful results of modern surgery.
2. They have made possible practically all modern abdominal surgery, including operations on the stomach, intestines, appendix, liver, gallstones, pancreas, spleen, kidneys, etc.
3. They have made possible all the modern surgery of the brain.
4. They have recently made possible a new

*Ballot title reproduced in preceding editorial.—Ed.

†From Dr. W. W. Keen's "Annual Experimentation and Medical Progress", 1914.

surgery of the chest, including the surgery of the heart, lungs, aorta, esophagus, etc.

5. They have almost entirely abolished lock-jaw after operations and even after accidents.

6. They have reduced the death rate after compound fractures from two out of three, i. e., sixty-six in a hundred, to less than one in a hundred.

7. They have reduced the death rate of ovariectomy from two out of three, or sixty-six in a hundred, to two or three out of a hundred.

8. They have made the death rate after operations like hernia, amputation of the breast, and of most tumors a negligible factor.

9. They have abolished yellow fever—a wonderful triumph.

10. They have enormously diminished the ravages of the deadly malaria, and its abolition is only a matter of time.

11. They have reduced the death rate of hydrophobia from twelve to fourteen per cent of persons bitten to 0.77 per cent.

12. They have devised a method of direct transfusion of blood which has already saved very many lives.

13. They have cut down the death rate in diphtheria all over the civilized world. In nineteen European and American cities it has fallen from 79.9 deaths per hundred thousand of population in 1894, when the antitoxin treatment was begun, to nineteen deaths per hundred thousand in 1905—less than one-quarter of its death rate before the introduction of the antitoxin.

14. They have reduced the mortality of the epidemic form of cerebrospinal meningitis from seventy-five or even ninety-odd percent to twenty percent and less.

15. They have made operating for goiter almost perfectly safe.

16. They have assisted in cutting down the death rate of tuberculosis by from thirty to fifty per cent, for Koch's discovery of the tubercle bacillus is the cornerstone of all our modern sanitary achievements.

17. In the British Army and Navy they have abolished Malta fever, which, in 1905 before their researches, attacked nearly thirteen hundred soldiers and sailors. In 1907 there were in the army only eleven cases; in 1908, five cases; in 1909, one case.

18. They have almost abolished childbed fever, the chief former peril of maternity, and have reduced its mortality from five or ten up even to fifty-seven in every hundred mothers to one in twelve hundred and fifty mothers.

19. They have very recently discovered a remedy which bids fair to protect innocent wives and unborn children, besides many others in the community at large from the horrible curse of syphilis.

20. They have discovered a vaccine against typhoid fever, which among soldiers in camps has totally abolished typhoid fever, as President Taft has so recently and so convincingly stated.

The improved sanitation which has helped to do this is itself largely the result of bacteriologic experimentation.

21. They are gradually nearing the discovery of the cause, and then we hope of the cure, of those dreadful scourges of humanity, cancer, infantile paralysis and other children's diseases.

Who that loves his fellow creatures would dare to stay the hands of the men who may lift the curse of infantile paralysis, scarlet fever, and measles from our children and of cancer from the whole race? If there be such cruel creatures, enemies of our children and of humanity, let them stand up and be counted.

22. As Sir Frederick Treves has stated, it has been by experiments on animals that our knowledge of the pathology, methods of transmission, and the means of treatment of the fatal "sleeping sickness" of Africa has been obtained and is being increased.

23. They have enormously benefited animals by discovering the causes and, in many cases, the means of preventing tuberculosis, rinderpest, anthrax, glanders, hog cholera, chicken cholera, lumpy jaw and other diseases of animals, some of which also attack man. If the suffering dumb creatures could but speak, they, too, would pray that this good work should still continue unhindered.

In April, 1914, when Mr. Rockefeller gave \$1,000,000 to extend the work of the Rockefeller Institute, to the study of animal diseases in a laboratory to be established in New Jersey, the anti-vivisectionists persuaded the Governor to veto the bill authorizing this eminently humane work!

As opposed to the above extraordinary list of accomplishments, compare the "achievements" of the anti-vivisectionists again quoted from Dr. Keen's work:

The Achievements of the Foes of Animal Experimentation.

1. Not a single life has been saved by their efforts.

2. Not a single beneficent discovery has been made by them.

3. Not a single disease has been abated or abolished by them either in animals or man.

4. All that they have done is to resist progress—to spend \$500,000 in thirty years in Great Britain alone, and very large amounts of money in the United States—and to conduct a campaign of abuse and gross misrepresentation.

5. They apparently care little or nothing for the continued suffering and death of human beings, the grief and not seldom the ensuing poverty of their families, provided that twenty-six out of every thousand dogs and cats, monkeys, and guinea pigs, mice, and frogs experimented on shall escape some physical suffering.

6. They insist, therefore, that all experimental research on animals shall stop and—astounding cruelty—that thousands of human beings shall continue year after year to suffer and to die.

VIVISECTION BRIEFS.

If the scientists who experiment on animals were the cruel, cold blooded butchers pictured by the anti-vivisectionists, even so the animals used by them would be given the greatest possible comfort, the greatest possible relief from pain and shock and the greatest possible after-care because the success of the experiment would require that very thing.

* * *

Every one who has had his life saved by an abdominal operation should realize that the operation would have been impossible and he would be dead if animal experimentation had not developed aseptic surgery.

* * *

The cause of cancer will one day be found and its cure be possible through animal experimentation.

* * *

The diagnosis of tuberculosis is often made and the patient's life saved through the sacrifice of a guinea pig, when it could not be done by any other method.

* * *

The presence of syphilis in patients is now discovered in ten cases where formerly it was discovered in one and overlooked in nine. The diagnosis rests on animal experimentation.

* * *

One horse furnishes antitoxin which saves hundreds of human lives—and the horse continues to live with more comfort and better care than many humans about whom anti-vivisectionists do not worry.

THE NATIONAL BOARD OF MEDICAL EXAMINERS.

This board was organized in 1915 by Dr. W. L. Rodman, at that time President of the American Medical Association. Its purpose was to establish in this country a standard qualifying examination which could be safely accepted by state boards of medical licensure.

It has already gained recognition to the effect that its certificates are accepted by the United States Army, Navy and Public Health Services as a qualification for admission to their Medical Corps, and the state boards of medical examiners of twenty states are accepting its findings with an effort on the part of many others to change existing laws to the end that they too may accept its certificates. The Conjoint Examining Board of England and the Triple Qualification Board of Scotland admit licentiates of the National Board to their final clinical examinations. It seems fair to predict that ere another decade shall have passed its certificates will be accepted in practically all of the United States.

Heretofore all examinations have been held in centers where sufficient candidates could be collected to justify when the complete examination would be held in the period of a week.

In order to meet the increased demand for an opportunity to secure its certificates, the National Board has modified the form of the examination by dividing it into three parts which may be taken at separate times. This will enable eligible undergraduate students to take some of their examinations during their medical college course. The examinations are divided as follows:

Part I. A written examination in each of the six fundamental medical sciences: Anatomy, including histology and embryology; Physiology; Physiological Chemistry; General Pathology; Bacteriology; Materia Medica and Pharmacology.

Part II. A written examination in each of the four following subjects: Medicine, including pediatrics, neuropsychiatry, and therapeutics; Surgery, including applied anatomy, surgical pathology and surgical specialties; Obstetrics and Gynecology; Public Health, including hygiene and medical jurisprudence.

Part III. A clinical and practical examination in each of the following four subjects: Clinical Medicine, including medical pathology, applied physiology, clinical chemistry, clinical microscopy, and dermatology; Clinical Surgery, including applied anatomy, surgical pathology, operative surgery, and the surgical specialties of the diseases of the eye, ear, nose and throat; Obstetrics and Gynecology; Public Health, including sanitary bacteriology and the communicable diseases.

Parts I and II will be given simultaneously in all Class A Medical Schools where there are registered candidates. Part III will be given under the direction of the National Board in districts in which subsidiary boards have been established. The following centers have been selected for this purpose: Boston, New York, Philadelphia, Baltimore, Washington, D. C., Nashville, New Orleans, Galveston, Cleveland, Chicago, St. Louis, Minneapolis, Iowa City, Denver and San Francisco.

Candidates must submit satisfactory credentials of having successfully completed a four-year high-school course and two years of acceptable college work, including physics, chemistry, biology and a modern foreign language; and must present satisfactory evidence of moral fitness from three physicians in good standing. These credentials are passed upon by the Board independently of their previous acceptance by medical colleges.

Circulars of Information can be obtained from Dr. David A. Strickler, Empire Building, Denver, Colo.

A certificate from the National Board is well worth the serious consideration of every young man who can qualify for the examination. It will give standing in the profession that only the best may reach and will serve to distinguish its possessor from the average in medical circles. In the near future it will add greatly to the comfort of the man who seeks a license in other states.

D. A. S.

STATE BOARD OF HEALTH NOTES.

Smallpox.

Smallpox, as shown in the graph, is lessening somewhat from last year, but is still with us. Vaccination has been general all over the state, and it will be some years before smallpox catches us with our armor off, as it were. The lean years, as shown in the graph, do not necessarily mean that smallpox was absent, but rather that it was not recognized. Some medical men racked their brains for names for the disease. Any old port in a storm, any name but smallpox. Of course chickenpox was the favorite, but impetigo contagiosa, buffalo gnat bites, flu eruption, and even measles were levied on to designate the trouble.

Stomach rashes gave a number some consolation. One enthusiastic doctor found one hundred and fifty cases of impetigo contagiosa in a small town. When the flu was prevalent, a considerable number of cases were followed by an eruption which was found to be smallpox; these cases proved to have been smallpox from the beginning. Cases of chickenpox in the adult began to make one suspicious, though some books claim it does occur. Many of the younger men had never seen a case of smallpox, while many of the older ones still looked for the classic textbook description. The absence of any standard method of bacteriological examination is a gap in the diagnosis.

CASES OF SMALLPOX REPORTED.



JUBILEE VOLUME! LAST NOTICE!

Have you sent in the titles of your publications for the Jubilee Volume? If not, please do so at once. The committee cannot hope for accuracy and completeness without the help of each individual writer. Those who wish all their writings to appear correctly in the lists should send in their copy or call at the library and check up on the lists already made. This is the LAST CALL. Please give us your assistance.

W. A. JAYNE,

Chairman of Committee on Publication.

THE ST. LOUIS MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

To the Editor:

For the convenience of many of your readers who will plan to attend the meeting of the American Medical Association, which is to be held in our city next May, will you kindly publish the following in your esteemed journal?

The May meeting of the American Medical Association at St. Louis promises well toward being the largest in attendance of any of the association's sessions. Since the publication of the hotels in the Journal of the association in December, inquiries and reservations are being made daily. The hotels and the Conventions Bureau are aiding the committee in a most satisfactory and helpful way to see that the fellows are comfortably housed and accommodated. The A. M. A. meetings tax all cities entertaining them to the limit of hotel capacity. Whenever possible a good fellow should double up so that no one is left without comfortable lodging.

Reservations should be made by communicating direct with the hotels. If satisfactory arrangements cannot be made in this way, write to Dr. Louis H. Behrens, chairman committee on hotels, 3525 Pine Street, St. Louis, Mo.

Very truly yours,

THOMAS A. HOPKINS, M.D.,

Chairman Committee on Printing.

Following is a list of St. Louis hotels submitted by the committee, with addresses. Prices range from \$1.50 for single occupant, without bath, to as high as \$9.50 for double, with bath, all on the European plan. The Claridge, Jefferson, Planters and Statler show the highest maximum rate and the Cabanne makes only a weekly rate of from \$12 to \$37.50.

Hotel, With

Number of Rooms.

Street Address

American, 275.....	7th and Market Sts.
American Annex, 225.....	6th and Market Sts.
Beers, 114.....	Grand and Olive Sts.
Brevort, 50.....	4th and Pine Sts.
Cabanne, 43.....	5545 Cabanne St.
Claridge, 350.....	18th and Locust Sts.
Hamilton, 160.....	Hamilton and Maple Sts.
Jefferson, 400.....	12th and Locust Sts.
Laclede Hotel, 265.....	6th and Chestnut Sts.
Majestic, 200.....	11th and Pine Sts.
Marion Roe, 200.....	Broadway and Pine Sts.
Marquette, 400.....	18th and Washington Sts.
Maryland, 240.....	9th and Pine Sts.
Planters, 400.....	4th and Pine Sts.
Plaza, 200.....	3300 Olive St.

Roselle, 100.....4137 Lindell Blvd
 St. Francis, 120.....6th and Chestnut Sts.
 Statler, 650.....9th and Washington Sts.
 Stratford, 100.....8th and Pine Sts.
 Terminal, 100.....Union Station
 Warwick, 200.....15th and Locust Sts.
 Westgate, 125.....Kingshighway and Delmar Sts.

Original Articles

FEEDING THE NEWBORN INFANT.*

F. P. GENGENBACH, M.D., DENVER.

We all realize the importance of a good beginning. Sociologically the newborn infant is entitled to the best possible beginning in life so that it may become the best possible citizen in later life.

While much is heard of the influence of mind over matter, we physicians appreciate the influence of a healthy body over mind and morals. What is more essential to the development of a healthy body than proper nourishment?

We all know that human milk is the proper nourishment for the newborn infant, yet we are continually ridiculing Dame Nature and tempting Fate by unnecessarily taking the infant from the breast.

"But nowadays mothers cannot nurse their babies like they used to," some doctors claim, while others say, "but in many cases the milk is too rich for the baby, in other cases, too poor, and in still other cases, the mother's milk is like poison to the baby".

May I answer this last objection first, by saying that in my experience the only time it has approached even the semblance of truth, was when the mind of the mother was literally poisoned by the persistent assertions of perhaps well meaning friends and ignorant doctors that she never could nurse her baby.

The infant with it's undeveloped and unstable nervous mechanism is peculiarly susceptible to the mental attitude of the mother. We sometimes laugh at an advertisement referring to milk from contented cows, yet we are all agreed that a mentally perturbed mother leads to a digestively disturbed infant.

To answer the objections referring to the breast milk being too rich or too poor would be to reiterate much of what was said upon this subject in the paper read before this Society two years ago.

One of the principal reasons for this paper is to refute the statement so often expressed not only by laymen but many physicians as well, that a large proportion of mothers cannot nurse their babies.

We are greatly indebted to Dr. J. P. Sedgwick for his investigations into the breast nursing problem in Minneapolis. He has definitely shown us that over ninety percent of the mothers were able to nurse their babies, either wholly or to a sufficient extent to make the breast

milk an essential part of the infant's nourishment.

He has also shown us that successful breast nursing is dependent upon regular complete emptying of the breasts, and that with the aid of manual expression of the milk after the infant has nursed, the secretion of the breast may be increased and in some cases rehabilitated even after the mother has ceased nursing her infant for several weeks.

These are facts which we have verified to our satisfaction and that of many mothers. Frequently it has required much tact upon the part of the physician, and even more patience and persistence upon the part of the mother, but the results usually have justified the use of all these virtues.

It has been my practice to have the mother nurse the infant every four hours for ten minutes at each breast, after which any milk remaining in the breasts is manually expressed and given to the infant with a spoon or in a bottle.

At first the mother usually obtains only a few drops, then a teaspoonful or two, and later as much as an ounce or more. Not only does this small extra amount of milk after each nursing frequently spell the difference between the baby's gaining and not gaining, but the thorough emptying of the breasts seems to stimulate an increased secretion of milk.

Unless the supply of breast milk is markedly inadequate, this plan of feeding should be tried for several weeks before condemning it and resorting to artificial feeding. Where the supply of breast milk is inadequate and cannot be increased sufficiently, the infant should be given complementary and not supplementary feedings as the latter entail a decreased number of nursings with their stimulation of the secretion of the breasts.

If a complementary feeding is necessary after every nursing a modification of whole or skimmed cow's milk is prepared for the day, but if only given occasionally a dry milk formula freshly prepared each time is usually used because of its convenience.

Where the mother cannot nurse her baby, a wet nurse is the second choice, although some trying experiences have led me to look upon the wet nurses themselves as a necessary evil, tolerated only because of the benefit of their milk to the baby. The third choice is to buy some breast milk, as modifications of cow's milk are better tolerated when some breast milk is added to them. Here again, however, experience leads me to warn the physicians to make sure that it is human, and not bovine milk, that his patient is buying.

When no breast milk is obtainable the physician has no choice but to use some substitute food, usually a modification of cow's milk. I hold no brief for any proprietary infant food, neither do I condemn them all for at times they may be useful, but is it not a serious reflection upon the profession at large, and also upon many hospitals, that so many laymen have gained the impression that when a bottle feed-

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

ing is necessary a brand of canned milk is practically always used? Furthermore, when the baby who is getting this milk is taken some months later to the pediatrician and he finds evidence of rickets and a lowered resistance to disease because of the continued use of this food, who is to blame for the condition—the parents who were deluded by the possible continued gain in weight of the baby, or the physicians who first prescribed it?

It is time that the dietetic armamentarium of most general practitioners, and many obstetricians, should be enlarged. When questioned most of them frankly admit their limitations when it comes to infant feeding, yet they make no special effort to improve their knowledge of the subject. In justice to the infant and as a matter of self-respect and honesty to themselves, they should either make that effort, or else call to their assistance the physician who has been specially trained for the work.

If a patient has an acute appendix the general practitioner calls in the abdominal surgeon; if the patient has a mastoiditis the ear specialist is called in; if a child has aspirated a foreign body into its bronchus, the specially trained throat surgeon is called in; but if the mother cannot nurse her baby, or if the infant does not thrive on the bottle, it is Fate and usually nothing further is done.

Let us be honest with ourselves and just to our patients. Breast milk is the infant's natural food; do not deprive it of its birthright without the opinion of the trained infant feeder. If the damage has already been done and the infant is on the bottle when it is brought to you, and it fails to thrive under your care, give it the benefit of the specialist when obtainable.

There is a growing tendency in the better conducted hospitals to place the newborn infant on the pediatric service. The reason for this is so obvious that one cannot help but wonder why it is not done in all hospitals, for who is better fitted to solve the problems of breast or bottle feeding than the trained pediatrician?

It is not simply self-interest that leads me to say that in no case should a young infant be taken off the breast without the opinion of the pediatrician when he is available. Neither is it right for the general practitioner, recognizing his own limitations, to continue blindly to prescribe the feeding of an infant when it is obviously not thriving. Because he is doing his best is not an adequate excuse when he knows there is some other physician who has had more experience in that line. The patient is entitled to his physician's best and if necessary to the other physician's, too. Needless to say that this does not apply only to infant feeding.

But what shall we give the newborn infant if breast milk is not available or is insufficient? Many of them will tolerate a weak whole milk modification, especially those receiving some breast milk, but since it is usually the fat in cow's milk which disagrees with the infant, it is sometimes safer to start with a skimmed milk modification. In either case the milk is boiled

because physiologically it agrees better with the infant than raw milk.

Where the infant is getting no breast milk start with 1 ounce of skimmed milk, $2\frac{1}{2}$ ounces of water, and about $\frac{1}{8}$ ounce of sugar, per pound per day. Thus for a 5, 7, or 9 pound infant we would respectively use 5, 7 or 9 ounces of skimmed milk, $12\frac{1}{2}$ - $17\frac{1}{2}$ or $22\frac{1}{2}$ ounces of water, and $\frac{5}{8}$, $\frac{7}{8}$, or $1\frac{1}{8}$ ounces of sugar. Boil for three to five minutes in a single boiler, or eight to ten minutes in a double boiler, preferably the latter. Divide into seven bottles and give a feeding every three hours during the day and four hours at night.

It is a safe rule never to urge an infant to take more of a feeding than it wants, and always tell the mother not to give the unused portion of the feeding later, but to throw it away.

Where the infant is getting some breast milk only a third or a half of the formula should be prepared. If there is an excessive amount of colic, decrease the sugar somewhat. If there is a persistence of curds in the stools, use barley or some other cereal water instead of plain water as a diluent, and decrease the sugar in proportion to the amount of barley flour used. Cook the barley water first, then add the milk and boil again as previously directed.

Each day replace 1 ounce of skimmed milk by 1 ounce of whole milk until only whole milk is being used; then increase the whole milk and decrease the water each 1 ounce a day, until the infant is getting at least $1\frac{1}{2}$ ounces, but practically never more than 2 ounces of whole milk per pound per day. This amount of whole milk will take care of the protein and fat requirements of the infant. As the milk is increased the sugar is gradually decreased, the amount of sugar added and present in the milk together being kept at about six percent of the total mixture, or between $\frac{1}{8}$ and $\frac{1}{5}$ ounces per pound per day. The trained infant feeder recognizes the various forms of food intolerance, and regulates the amount of fat, protein and carbohydrate, also the kinds of carbohydrate used, accordingly.

When the milk modification has reached the required strength the infant is usually put upon a four-hour schedule, receiving 2 ounces more at each feeding than it is months old, but usually not over 8 ounces at a feeding, nor over 32 ounces of whole milk in the twenty-four hour mixture.

Summary.

1. Mothers, with the ordinary exceptions of those afflicted with active tuberculosis, malignant and debilitating chronic diseases, can usually nurse their babies wholly or in part.
2. The infant should, whenever possible, receive breast milk.
3. The young infant should not be weaned from the breast without the opinion of the pediatrician when obtainable.
4. Newborn infants in hospitals should, when possible, be placed on the pediatric service.
5. When it becomes necessary to start artifi-

cial feeding, a weak modification of whole or skimmed cow's milk is preferable.

6. When an infant is not thriving, whether on the breast or bottle, it is only fair to the patient that it should have the benefit of the most skillful treatment obtainable.

DISCUSSION.

Emanuel Friedman, Denver: I do not think that Dr. Gengenbach could have chosen a subject that is of wider interest, or at least should be of wider interest to the general practitioner, than the subject which forms the topic of this paper this morning. I think it is a pretty safe assertion in the vast majority of instances where a child is weaned from the breast that this has been done without sufficient justification. The doctor has very correctly stated that at least ninety percent of women are capable of nursing, if not exclusively, at least partially, their offspring. He has also stated the reason which should constitute a valid justification for weaning the baby, namely, some chronic debilitating affection of the mother. In most instances we find that a child is weaned from the breast because it has colic or because it has stools which are either abnormal in appearance or too frequent in number. I think it cannot be too strongly emphasized that these are entirely insufficient grounds for weaning a baby. We ought at all times to attempt to find the cause for colic and also the cause for failure to gain. These may be dependent upon the mode of life that the mother is leading. A mother who does not get a sufficient amount of sleep, who does not get a sufficient amount of rest, who is not getting the proper amount of food or a food of the proper quality, cannot expect to have milk fit for her baby. We should, therefore, inquire very carefully into all the details pertaining to the mother's life. We should also attempt to find out what is wrong with the milk and whether it is insufficient in quantity. This can be very readily ascertained by weighing the child before nursing and after nursing. The difference, of course, will represent the amount of milk that the baby has gotten from the breast. If this is found insufficient upon repeated examination, we should institute, as the doctor has said, complementary and not supplemental feeding, because we find that the best stimulus to the breast is regular nursing.

G. M. Blickensderfer, Denver: I am thoroughly in accord with what Dr. Gengenbach has expressed to you this morning, and I don't know that I have very much to add, but shall emphasize one point, and that is to determine whether the baby is to be weaned or not. Too often the baby is taken from the breast upon one analysis of milk which will show, perhaps, a deficiency in the fats or too high a percentage of proteids. If the milk was analyzed five or six hours later, an entirely different picture might be obtained, or the next day the milk might be entirely different from what it was on the previous day; therefore, one or even two analyses of milk showing some changes from the normal in either the fats or proteids is not sufficient to justify weaning the baby. The mother may be resting too much and furnishing too rich a milk, or she may be working too hard or working too much and getting too poor a milk. These conditions should be definitely ascertained before removing the baby from the breast and commencing bottle feeding—either with a modification of cow's milk or anything else. The baby should have its chance at the breast and breast feeding should be persisted in until it is definitely certain that the milk will not agree with the baby and then, as Dr. Gengenbach has expressed in his paper, a consultant should be called in and his advice obtained before the baby is weaned.

E. L. Timmons, Colorado Springs: If there is anything I enjoy it is hearing a great deal in a few words, and the essayist is certainly to be complimented on his paper. In regard to the quality

of the mother's milk, it seems we have made a mountain out of a molehill. In ninety-eight cases out of a hundred the milk is all right. I think Marriott of St. Louis has told us about that. Too many children are weaned within the first ten or fifteen days when possibly they think the milk is too rich for the baby. It is the rarest thing when a child should be weaned at all under six months of age. Complementary feeding, of course, is absolutely necessary in a great many cases. I think I ran some twenty percent in a series of two hundred. I was not able in private homes to weigh these babies before and after feeding, but when I saw the baby was not gaining I did not worry about the quality but generally about the quantity. Most all the babies gained. As regards getting the baby back on the breast, I have succeeded in getting babies back on the breast within twenty days, but very easily you can do that in ten to fifteen, and in most cases it is necessary. In regard to canned milk, I think the man who allows the mother to wean these babies and places them on so-called foods (and they are so-called foods, because they do not contain a sufficient amount of nutrition) is responsible for these diseases later on, such as rickets, etc. Regardless of all our new theories as to the cause of rickets, it seems to me it comes back to these canned milks and so-called foods, and we usually discover it after we have our bony changes, which is too late to do the good we should do. Absolutely in over ninety-eight percent of the cases the child should remain on the breast, and if not on the breast on some modified whole milk. Modification is very simple, indeed, as outlined by Dr. Gengenbach. Those seem to be the causes of high infant mortality in the first six to twelve months of life. If the child can be kept partially on the breast for the first six months it will get along well, but do not allow it to remain any length of time on these so-called foods.

O. M. Gilbert, Boulder: I would like to ask the doctor if he would express an opinion on the dextrinized foods as opposed to barley water.

H. Tremaine, Denver: I want to speak of one point, and that is in regard to the laboratory analysis of the milk. In the first place, milk that you get to analyze is not the milk that the baby nurses. The milk you draw artificially is different. The best laboratory is the baby's body itself. We do not care so much as to what we put in the milk as to what is done with it when it gets there; and when you figure the percentage of the mother's milk I would like to say that we are not dealing in percentages but dealing in results, and seeing the result of the digestion you know whether the baby is getting too much food or too much proteids, and you have a much more practical way of estimating it from day to day without the laboratory than the laboratory can possibly give you.

Dr. Gengenbach (closing): Of course, this is too big a subject to be covered in one paper, and I hope you understood the purpose of my summary, i. e., just to emphasize certain points, and I purposely omitted the matter of whether the breast milk was too rich or too poor, because I had covered it rather thoroughly in my paper two years ago, published in *Colorado Medicine*. In regard to the matter of cereal waters, I practically always use barley or oat flour, rather than the cereals themselves, simply as a matter of convenience. Dextrinizing them does make them more easily digested. Sometimes this is a good thing and sometimes it is not. Infants, as a rule, tolerate the starches quite well. We used to believe, years ago, when I went to college, that you should not consider barley water before the infant was six months old, because it did not have the necessary starch digestion to take care of it. That theory was exploded quite a number of years ago. The value of dextrinizing starches is that they are partially digested. In the process of dextrinization the starch is converted into dextrin and maltose, depending on the degree of heat at the time you add the dextrinizing agent. For instance, if you boil your barley water before you add your dextrinizing agent you should let it cool off; otherwise it will

not dextrinize; the dextrinizing ferment is destroyed. If you put it in when the temperature is about 160 degrees Fahrenheit you will get more maltose than dextrose. If you put it in at 140 degrees most of the starch is converted into dextrose. As many bottle-fed babies are constipated when on cow's milk, you want the food more laxative and you should try to get more maltose than dextrose. We used to lay great emphasis on the stools of breast-fed infants—in fact, if we found they had curds in them we took it for granted the baby was not digesting the milk well. Now, we rather feel that if the baby is comfortable between feedings and is gaining at least a quarter of a pound a week, we can usually ignore the character of the stools. This is also true of slight regurgitation of milk. Anyone who has much to do with breast-fed babies knows that practically all of them will spit up some milk when they get too much.

MALNUTRITION IN CHILDREN.*

ELMER L. TIMMONS, M.D., COLORADO SPRINGS.

This subject has at last begun to receive the attention it deserves as evidenced by the various articles appearing in medical journals, newspapers and magazines as well as agencies at work to combat the condition.

It is important that we should teach parents, teachers, social workers and all who are responsible for the welfare of children.

Malnutrition is noninfectious and noncontagious, and does not produce sufficient pain to demand attention and treatment, otherwise the medical profession would have been compelled long ago to take steps to control it.

Malnutrition is a low condition of health and body resistance, measured by height, weight and robustness and many other symptoms.

Let us for illustration describe first the well nourished child. He measures up to racial and family standards of his age, height and weight; color is good, eyes bright, no dark or blue circles under them, and he has smooth glossy hair. He has good carriage, elastic step, firm flesh and well developed muscles. He is happy, good natured, brimful of life and animal spirits, constantly active both mentally and physically. He sleeps soundly, appetite and digestion are good, bowels regular. In fact, he is what nature meant him to be—a happy, healthy young animal.

A malnourished child lacks one or more of these characteristics, depending on the degree of malnutrition. He is usually thin, but may be flabby and fat instead. His skin may have a pale, sallow, muddy, pasty or even earthy appearance. Usually there are blue circles under his eyes, and the mucous membranes are pale and colorless. His hair may be rough, tongue coated, bowels constipated. His skin seems loose, flesh flabby and muscles undeveloped. Because of lack of muscle tone, the shoulders are usually rounded, chest flat and narrow, and decayed teeth, adenoids, enlarged or diseased tonsils may be present.

He is apt to be listless at play and work, to tire easily, does not care to romp and play like other children, is often called lazy, frequently

lacks mental vigor, has decreased power of concentration and attention, and absence of inquisitiveness and alertness. The expression is lifeless and dull. He may be irritable and hard to manage, often afraid of strangers, may be nervous, restless, fidgety, sleep poorly and be finicky about his diet.

So you see malnutrition is a relative term. As a rule a child seven to twelve percent under weight for height is considered under-nourished. The rule is five or more defects in the malnourished child to one in the nourished one.

Next comes the question of the extent of malnutrition. Does this condition exist in our own communities? And to what extent? What can be done? In checking up the reports from various cities where surveys of schools have been made, the estimate of undernourished school children runs from twenty to forty-five percent, making from seven to ten million school children at present undernourished in this country. No doubt in your own community, with the proper survey, you will find not less than twenty percent of your children undernourished.

Next comes the most important question, what causes malnutrition?

Hereditry plays a very minor part. Most children are born healthy. Given this start they should develop into healthy, well nourished children. That so few develop as they should is evidence that there is something wrong with our surroundings and feeding program resulting in faulty health habits.

The habits may begin in the first month of life. The best food for the infant from birth until at least six months of age is mother's milk. You should not worry about quality if you have quantity sufficient.

The next best food is properly modified cow's milk and plenty of it. There is absolutely no excuse for offering the so-called "foods" in place of fresh milk, except in very rare cases, because the many so-called foods do not contain the proper elements of food for the growing infant. It is a very good plan, when mother's milk is not sufficient in quantity, to add complementary feeding of modified fresh milk. Then during the last half of the first year, the growing child should have additional food, including cereals, fruit juices, vegetable juices, including the green leafy vegetables, following a very definite schedule as to preparation of food, amount and time to be given.

During the second year the amount of cereal, vegetables, meat juices, meat and various other foods allowed should follow a very definite schedule. The mother should know from the very beginning of the child's life how much it should gain each week and weigh each month, in order to be up to normal.

Following infancy, however, measured feeding is gradually discontinued, and there is a tendency to break away from the program of the first two years. By this time the child is in his third year and is too frequently allowed to choose his own food, both as to kind and quality. As a result faulty food and eating habits are formed, with resulting injury to the child's nu-

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

trition. The same may be said of the child's sleep as he grows older. Many physical defects are neglected, with the old time belief that the child will outgrow them, or is too young to be operated upon. Still, these years are very important and critical. Ninety percent of cases of measles and whooping cough occur before six, as well as more than ninety-five percent of the mortality from these two diseases. The same is almost true of diphtheria and scarlet fever. Of over fifty thousand deaths in America each year from these diseases, seventy percent occur before the age of five. Twenty-five percent of all deaths occur before the age of five, or, six times as many as in the next ten years of life. Most of this mortality is due to lessened resistance brought on by poor nutrition which could have been avoided. Other causes of malnutrition in children are, of course, frequently unsuitable food and drink, such as tea, coffee and cocoa instead of milk. The child must have food to provide energy. If food is not sufficient, then the body loses weight. Hence the diet of a growing child must be generous in amount. Indulgence in sweets and highly seasoned foods, habitually eating between meals, late hours, unventilated sleeping rooms, lack of exercise in open air, may all result in a finicky appetite, thereby causing the child to take too little food.

The diet must consist of the proper kind of food. Protein of animal origin is necessary. Minerals are very necessary. Milk is of course necessary, vegetables, fruits, whole cereals, eggs (after fifteen months) are all good. Then we must have a very generous supply of our recent friends, the vitamins; one, the fat soluble A. as found in cream, egg yolk, glandular organs, etc.; water soluble B. as found in vegetables, fruits, milk, etc.; water soluble C., antiscorbutic, as found in the juices of citrous fruits, especially in orange juice, also in the juice from tomatoes. These are all very necessary.

Fatigue is a very common cause of malnutrition. Certain children do not gain until their rest period is lengthened. It is a very good plan to teach the child complete physical relaxation, with rest, while lying on its back for from fifteen to thirty minutes, preferably in the open air. In this type of rest and relaxation, with the proper support between and below the scapula, a certain form of faulty posture, called round shoulders, may be greatly relieved.

Lack of outdoor exercise, constipation, and the various unhealthful living conditions are common causes of malnutrition.

We must not overlook defects and diseases in our consideration of this subject. It would be hard to over-estimate the role played by adenoids and diseased tonsils, both of which act in a double capacity. By obstructing free passage of air into the lungs, they limit oxidation of food in the tissues. They also are likely to become diseased and their toxins to enter the blood stream and prevent building of tissue. So it is obvious why many cases of malnutrition are remedied by merely removing these growths. There are bad teeth, which may be either a cause or effect; also latent tuberculosis and

syphilis. When these physical defects are present they become even more important than food or sleep in causing under-nutrition.

Among other underlying causes are poverty, ignorance and lack of parental control. Even when they know better, many parents allow their children to eat what and when they like, to have too much stimulation and excitement, also to choose their own time for going to bed.

Another very important causative factor of malnutrition are posture and fatigue, which form a vicious circle; frequently fatigue results in poor posture and poor posture results in fatigue.

The rights of man have gradually emerged from slavery to freedom. The rights of women, too, have been slowly achieved until now the ballot is in their hands. But what of the child? Are there enough of us who have championed its rights? Among other, it has the right to be conceived; also to be born after conception; the right that the parents shall be healthy, both mentally and physically; the right that its mother shall be cared for so that it shall not be brought into the world under unhygienic surroundings, nor without skillful treatment during this time of helplessness; the right to have its own mother's milk until it is old enough to be weaned; the right, guaranteed by the state, to an equal chance with other babies to develop into the normal healthy child. Lastly, it has the right that when it reaches school age it shall have the best that the resources of any government can command, and its budding mind be so trained that it may attain to industrious, sober and healthy citizenship, take its place in the rank of producers, and be a real asset to the government, that has cared for it. This is a remedy for Bolshevism. These things will stamp out unrest in the world, and malnutrition, and be a great aid to the future of the race.

DISCUSSION.

F. P. Gengenbach, Denver: Dr. Timmons and I have tried in these two papers to point out to you what might be termed the weaknesses of the general practitioner in the matter of feeding of children. First, that they go wrong at the beginning by taking the baby off the breast too soon and, in the second place, that they go wrong in that they neglect the child after it has passed the so-called infant-feeding stage. We hear in medical societies a great deal about infant feeding, but it is only recently that we have realized the importance of the further feeding of the child. As I say, we lay the emphasis on the first year, or possibly two years, of life, and we think that after that the child has no more troubles from a dietetic or a nutritional standpoint. In my experience the greatest trouble I have had in older children is the matter of eating between meals. A child which is being improperly fed, either in quality or in quantity, or in the number of its feedings, wakes up in the morning with a naturally poor appetite, because in most of these children we have improper elimination and a certain degree of intestinal intoxication. Such a child wakes up with a poor appetite and eats a very poor breakfast. Then about the middle of the morning it suddenly craves something to eat. The mother, realizing the child ate hardly any breakfast, says to herself, "I guess I would better give it something to eat". Then when noon-time comes, and it should have an appetite for its dinner—and I lay emphasis on dinner, because the heaviest meal should be in the middle of the day—the child again eats very little. Then about

the middle of the afternoon it gets hungry again, and as it ate very little for dinner, the mother decides to give it something to eat again. At no time does the child get enough to thoroughly satisfy what should be a normal appetite, therefore it cannot go a normal length of time between feedings. I am glad Dr. Timmons has drawn attention to the matter of accumulated fatigue and bad posture. The child stands improperly and therefore throws an improper amount of strain upon the muscles of the body. He accumulates fatigue, and from this accumulated fatigue he assumes an even worse posture, and this leads to improper digestion and assimilation of food, and in time to chronic intestinal auto-intoxication.

H. Tremaine, Denver: I would like to speak further along the line Dr. Gengenbach took in regard to fatigue and posture. Brown, in Boston, did some very interesting work in posture, and he says that bad posture is a fatigue symptom, and I think if you will study it from that standpoint you will find it very true. You cannot tell a fatigued child to straighten up, because he has not the strength to do it, and fatigue is an expression of malnutrition. Now, malnutrition, as Dr. Timmons and Dr. Gengenbach have pointed out, is not necessarily all in the units of food, but it is the sum total of the living conditions, and your malnutrition contributes, of course, as Dr. Gengenbach says, to the fatigue. Now, in the child's nutrition we find that food taken after rest is much more efficacious, and as Dr. Timmons says, the under-nourished child is chronically tired because his digestive organs are tired. Of course, contributing to that is the posture which puts the organs in poor position, and the digestive organs are tired, and you cannot expect to have good digestion; you cannot expect to have the same kind of appetite; and I am very fond of saying that though the under-nourished child is not "hungry," he has such an accumulative hunger that what he eats between meals does not make an impression on the stored-up hunger that he has.

G. A. Boyd, Colorado Springs: I would like to discuss both papers, and I want to ask this question, and that is, how to use cow's milk during the summer months when the cows are eating grass. There is a period from July to September when we have the very greatest trouble in modifying cow's milk. I would like the gentlemen to state some means of meeting this problem. The milk from cows fed upon fresh grass and weeds and upon uncured alfalfa causes both vomiting and diarrhea. I think there should be some provision by the state, county or municipality whereby the children can be provided with milk from cows fed on cured hay and matured grains during these months. I wish the gentlemen would discuss this question. I believe we ought to standardize the feeding of the babies so that every general practitioner could go to his standardized food tables and find his guide to the proper food for the infant. I think this could and should be done. And then I think Dr. Timmons made a very important statement when he said that the state owed the infant something, and we ought to bring about those conditions that will make it possible for the mothers to care for the children. The press of the country could do a valuable service by giving publicity to this information.

Hubert Work, Pueblo: Dr. Boyd asked a question in regard to feeding cows dry feed and getting a modified milk to suit the child. He should have referred that question to me because I am a cowman. Dr. Boyd reasons well, but his premise is wrong. Cow's milk is never better than when a cow is on pasture. Calves never do as well as when their mothers are on pasture, and I think aside from the fact that his premise is wrong, Dr. Boyd is all right.

J. C. Chipman, Sterling: I just want to say that

we men who are located in the smaller towns do not have the child specialist always, and we have to look after the feeding of these children. Now, I never have boiled the cow's milk. I have modified the milk, and I very seldom have to put a child on any food except the mother's milk, and the mother's milk is the correct thing. But I always have found the exact opposite, as Dr. Work has said, to what Dr. Boyd has said. Probably he lives in an altitude that is so dry that dry food is better than any other food. I get better results and get a better grade of milk when the cow gets plenty of healthful grass to eat. A cow getting good nutritious food is like the mother getting nutritious food, she gives a better quality of food for the child.

Dr. Work: Now, I am sure Dr. Boyd is wrong.

Emanuel Friedman, Denver: We should at all times bear in mind the fact that malnutrition is not a disease entity, and we should not make a diagnosis of malnutrition unless we are absolutely forced to do so. We should, and in most instances we can, by careful examination, by careful history taking, ascertain the root of the trouble; and in many instances we discover a latent tuberculosis, a latent syphilis, anemia, malignancy, and so on. In infants and in young children we go to considerable pains to determine how much the child weighs and what the caloric needs of that particular child are, and try to adapt the food to the needs of that child. We should adopt the same plan in the case of older children. We should weigh the child, be that child two years or ten or twelve years old, and try to find out how much food it needs and give it that food, making sure that it contains the proper amounts of protein, carbohydrates and fats.

Dr. Timmons (closing): I rather expected to hear from the nose and throat men. Most of them are of great service in this work. And I did mention the fact that without their aid there are times we could not do anything in this question of malnutrition. Someone asked the question regarding the weight of the child, and in regard to the parents' weight. Of course, there are children below weight and below height, due to a family characteristic. The question of eating between meals, of course, forms that one vicious circle. Most of the trouble is caused by lack of parental control, and lack of parental control causes a lot of things. It fills our penitentiaries and jails. It is not at all uncommon for a child two or three years old to control a whole household, and as a result you have malnutrition. There is a very strong moral point there. Many women come to me and say, "My baby will not eat," and you find that the baby or the child eats everything it should not, and as soon as that is corrected the child will eat. I have seen school-boys eating bananas, ice cream and candy who very rarely eat an ordinary meal. They never get along well at school; they are intoxicated all the time; they are lazy, no account, hardly worth living. If you shut them off from these foods and get them on other diet of vegetables and fruit, they will be all right. It is the result of not eating right.

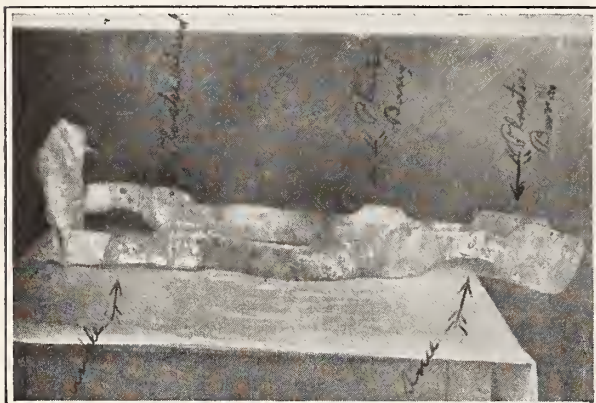
I am glad Dr. Work answered Dr. Boyd's question. Surely, if they have good green grass—the cows—their milk is best at that time. Dr. Boyd had reference to the fact, I think, that they frequently get a lot of green weeds and the milk does not taste sweet. Still, it is a better milk—better than when they are fed on dry food.

The question of standardizing this thing throughout the country, I don't think we could very well handle. The distribution of milk oftentimes is an emergency problem. The question of whether or not you boil your milk is optional. Oftentimes when in doubt I advise my people to boil the milk. The great cause of all this trouble is faulty eating habits, the result of no parental control, and that is the reason we have to have asylums, penitentiaries, policemen, sheriffs and jails—because we do not have parental control. I thank you.

JOINT INJURIES, WITH SPECIAL REFERENCE TO FRACTURES EXTENDING INTO THE JOINT.*

C. E. TENNANT, M.D., DENVER.

One of the most notable advances recently made in surgery and one which can be justly credited to the World war, is the care of fractures in and about the joints, be these fractures simple, or compound.



Jointed splint for compound fracture, tibia and fibula. Motion of knee and ankle.

In these days of fast-moving vehicles the injuries sustained are principally about the head and legs, and a large proportion of these fractures are compound, comminuted and involve the joints. To restore these joints is a problem presented to the modern surgeon. In this connection it is well to heed the advice of Sir Robert Jones in the preface to his recent work. He says: "Function is the orthopedic surgeon's goal, and he should know and be able to practice the best method of obtaining it. The operation means only the beginning of the problem, and his most brilliant exploits, unless directed toward functional success, should be a reproach." Since the automobile is everywhere, there is no community where these distressing injuries do not occur; therefore the warning sounded by Dr. Jones should be taken to heart and treated seriously by the general surgeon and the medical profession at large.

In the earlier textbooks on surgery much space was devoted to the subject of vessel ligation, together with the many amputation flaps in vogue. Then followed a period when more attention was given to the toilet of the wound, and steadily since then has the destructive practice of amputation been abandoned.

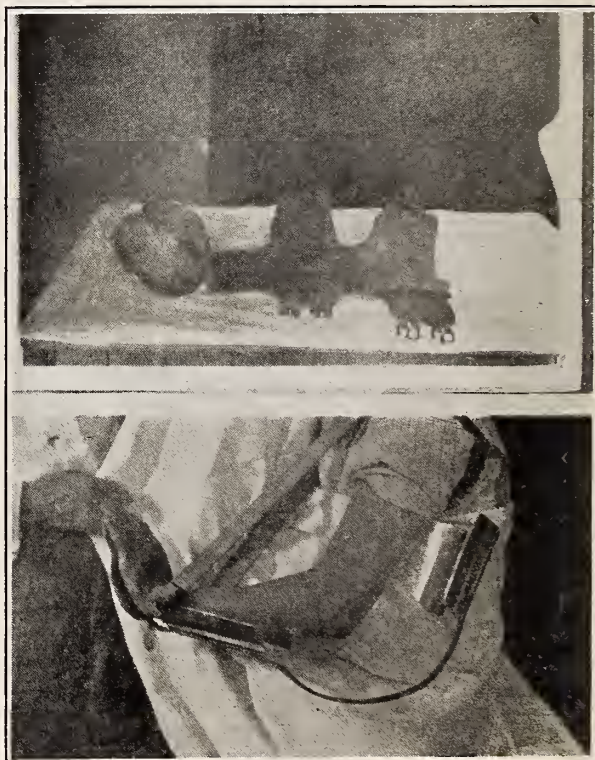
With the development of active antisepsis in injuries of the extremities there has come a conservation sparing many a valuable limb, and, as a result, we seldom see the legless or armless cripple; but in their place we have the ankylosed joint. To correct this the late J. B. Murphy proposed and adopted a method of unlimbering these ankylosed joints by the inter-

position of fascial transplants, a method which promised much for the crippled patient but with results so discouraging that the practice was soon abandoned.

When in 1918 Willems¹ announced the results of the care of a large series of these joint injuries, many of them being compound and infected, and when he was further able to show a number of these cases with good functioning joints, even after the most formidable examples of trauma,² surgery realized that it had been blindly following tradition in the universal practice of fixation. Willems and others³ have since proven that many of the so-called hopeless joints may become useful, providing the patient is forced to keep constant, active and voluntary mobilization, no matter whether these joints be open or closed, infected or clean. They have also demonstrated that many fractures of joints have been too long bound in splints, or only passive motion was used, and ankylosis was the natural sequence.

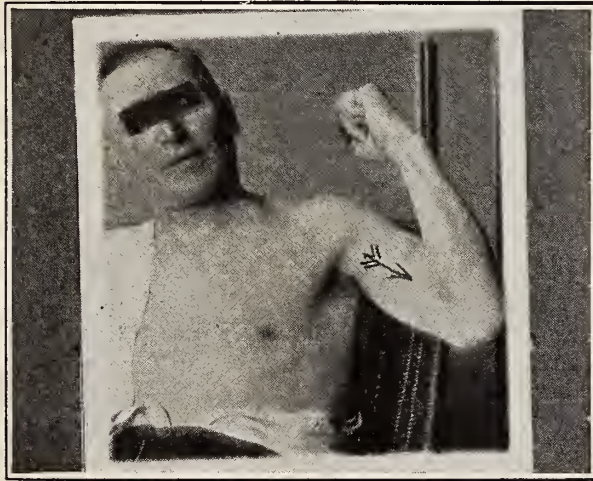
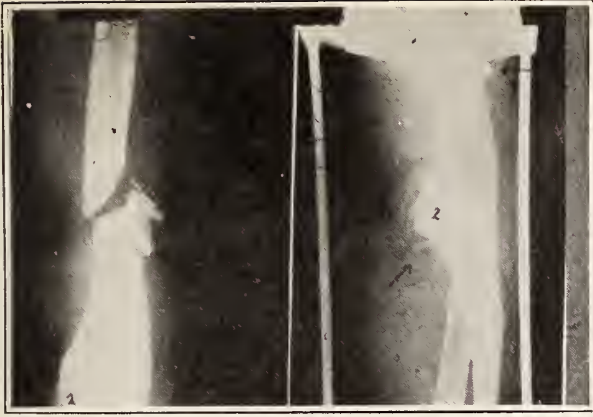
Some years ago Murphy called attention to the possibilities of too much fixation in certain fractures of the long bones, and the non-union in some of these cases was probably the result. He even advocated that delayed ununited fractures be taken out of their splints and braces used as a substitute, the patient being encouraged to use the member in order to stimulate the osteogenetic process in the ununited bone ends. This theory has been quite generally adopted and good results have been obtained.

With this has come the more general adoption of the old Hodgin's splint, together with a mod-



Two types of splints useful in relaxing extensor muscles of forearm and hand in traumatic paralysis.

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.



Compound comminuted fracture of the left elbow-humerus and extensive skin grafting. Almost complete extension and flexion. Paralysis extensor muscles hand—fully recovered.

ification of the Balkan frame for hammock suspension, for fractures of the lower extremities. These have made the limb more accessible for dressing, massage and realignment of the parts during the process of repair. This practice also does away with all tight constricting bandages, which so frequently produce atrophy of the limb.

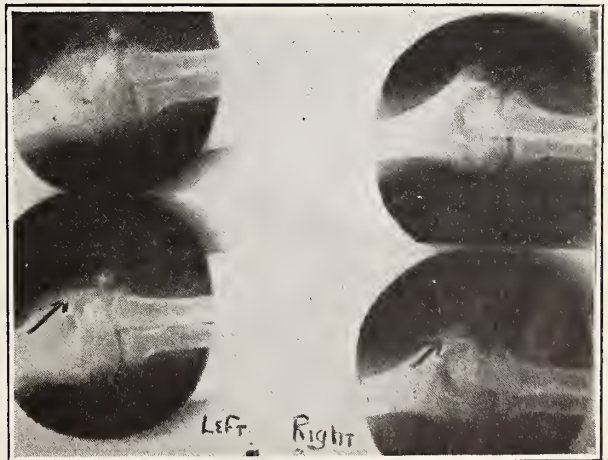
By the open suspension method we are able to secure normal nutrition for the injured member, as well as good muscle tone, both of which have much to do with the rapidity of repair and an early return to normal function. This method

also permits of constant close supervision and frequent inspection, which are imperative if function is the goal.

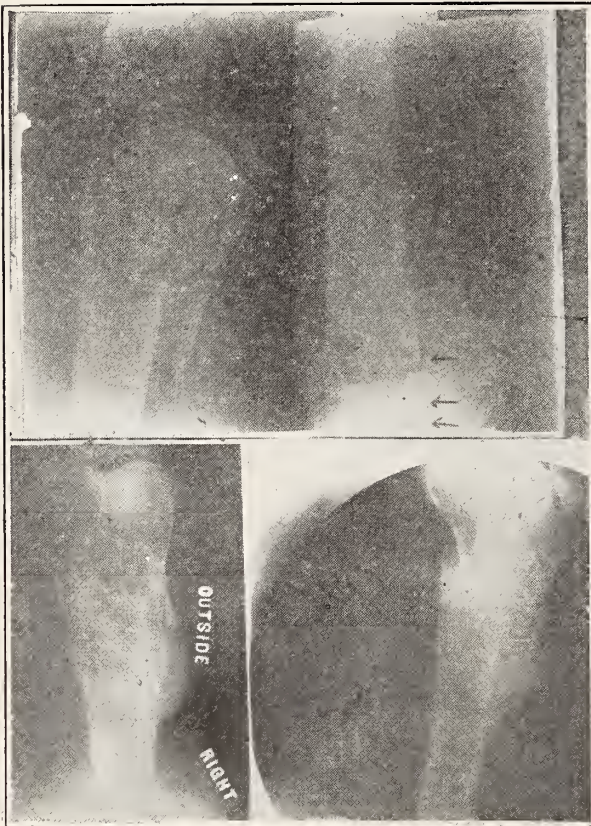
The time has not yet arrived, however, when one can with certainty predict the outcome of the joint function where the joint surface is involved in the fracture. Especially is this true when there is an open wound to complicate the healing. In the *Annals of Surgery*, September, 1919, Williams and Hetzel reported a comparison of sixteen cases of infected wounds of the knee joint in which no thorough voluntary mobilization was carried out, with eighteen similar cases of Willems in which there existed a purulent arthritis. In Williams and Hetzel's experience there was only one case with 90 per cent motion; four died with subsequent infection, three underwent amputation, one resection and one developed ankylosis. In Willems' series, where voluntary motion was practiced, there were no deaths, amputations or resections and there were only two resultant stiff joints.

In this modern method of treatment the limb is usually placed in such position as will secure the greatest amount of relaxation and the joint so placed that active or passive motion may be instituted at once. One must bear in mind that unless active manipulation is practiced, in order to keep the soft tissues pliable, even the adjoining structures which are not involved in the trauma soon become emaciated and atrophied. We invariably have lowered nutrition when a limb is completely encased in a plaster cast, and this impaired nutrition is reflected to both the injured joint and the tissues involved in the trauma. There are, no doubt, many ankylosed joints today which are not so much the result of the injury as of the treatment, especially where dressings and splints were too rigidly applied, or where prolonged fixation was resorted to.

It is frequently of great advantage to train patients in the care of these injuries, in order that they may themselves use the muscles to flex and extend the limb, as was first suggested by Willems. The patient should also be shown how to manipulate the muscles about the joint.



Simple fracture internal condyle. Continuous voluntary motion—perfect recovery.



Comminuted "T" fracture of lower extremity femur
—condyles separated by fracture extending from transverse separation into joint. Recovery and function normal.

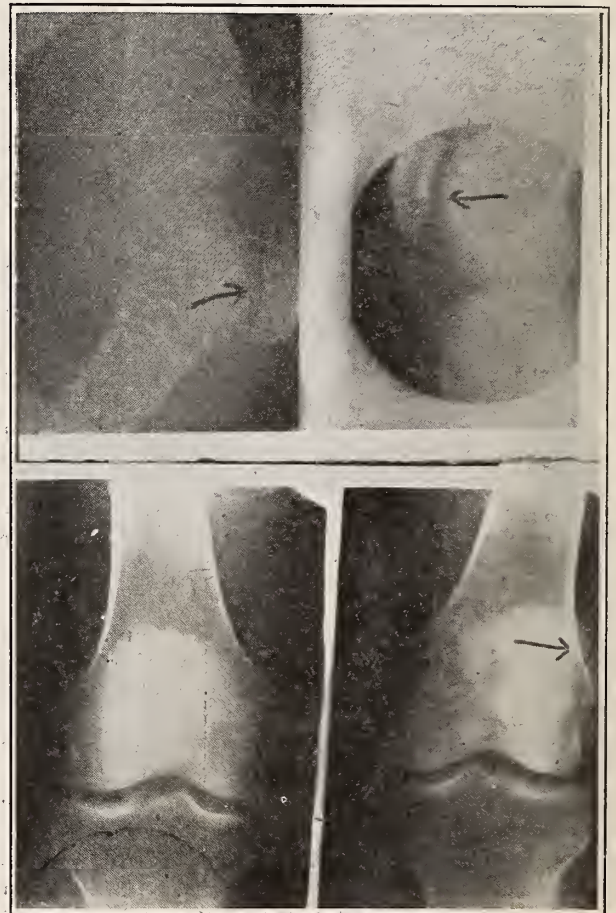
and to frequently contract nearby groups of muscles. They should be under hourly supervision in order to keep the joint in motion as well as to see to the application of gentle massage to the soft parts. Early ambulation in some form of ambulatory splint encourages a better nutrition, both for the individual and the injured member, and this one thing is often a great factor in the early and satisfactory recovery of joint function, because the pressure and motion on an open and infected joint expresses the pus, thereby aiding in good drainage.

The application of splints, either plaster or

metal, should, therefore, be made with this end in view. Metal straps which are hinged can be fitted to the limb by plaster bracelets, thereby exposing the greater part of the limb for dressing, manipulation and even for joint motion.

In certain types of cases, however, especially those joints with acute mild arthritis and those which are not open and suppurating, the irritation resulting from the manipulation of the parts frequently develops extensive serous effusion into the joint with limited motion as an end result. Moderate active motion is indicated here, frequent joint aspiration being done to relieve pain and approximate the joint surfaces. As the radius of motion steadily increases and the pain subsides, other adjuncts, such as massage and electricity, may be added for the atrophied muscles; this should be done because joint function will be deficient in proportion to the neglect in maintaining or securing the redevelopment of the muscles.

As the writer has frequently suggested, to secure good repair of either bone or soft tissue the patient must often be treated for anemia or some other constitutional disorder. Infliction of trauma sufficient to induce fracture is often sufficient provocation to develop constitutional disturbance, especially when patients who are active and apparently in good health are obliged to suffer bed confinement because the lower extremities or head are involved. The sudden ces-



Fracture of patellae, without clinical symptoms other than soreness. Capsule not torn.

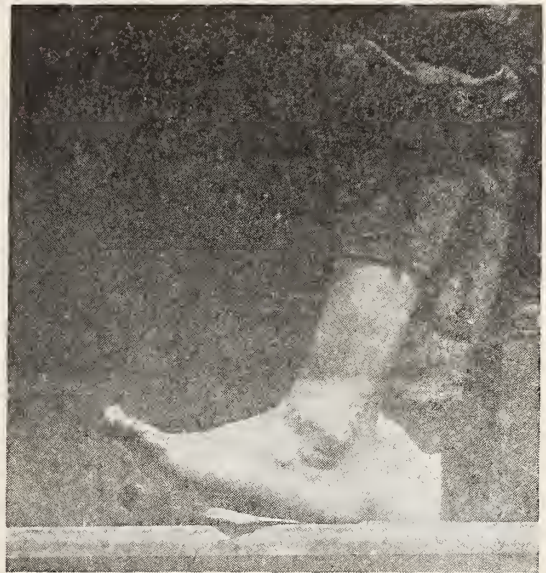
sation of normal activities, the loss of the regular periods of work and rest, and frequently the change of habit and diet, will cause profound constitutional disturbances.

Little has been said in the literature about the care of focal infection in connection with joint injuries, but there is no doubt that in some cases of obstinate traumatic arthritis it is a strong factor, and as a prophylactic measure these focal infections should always be searched for and eliminated in the early history of the case. The use of thyroid extract frequently proves effective in stubborn suppurative fractures after all other means have failed.

The presence of pain in the joints is good evidence that the parts are not properly opposed or that infection may be developing, with tension; or pressure at some point may be too great, and immediate and careful attention should be given the joint and adjacent structures.

While the degree of function depends upon the first three weeks of treatment, the full measure of benefit is secured only with the most careful follow-up attention. This care consists of such adjuncts as exercises applied to the muscles about the joints, either passive or active, massage to the injured muscles and related joints, hydrotherapy in some types of infection (which hydrotherapy may be supplemented by light therapy) and many of the mechanical appliances so well known and used under the head of physiotherapy. The writer has found in his own experience that patients who are kept busy using and redeveloping the various muscles and digits by some form of simple exercise, not only keep in a happier frame of mind but induce good function in what would otherwise be a hopeless case.

Constant attention should be given to the over-correction of all muscles which are involved in traumatic paralysis, for we now know that these muscles without their normal stimulation soon become stretched to such an extent that return to normal tone is either long protracted or they become useless in the end. There are many simple devices used for this purpose, such as the so-called cock-up splint, for the forearm and hand, of which the one here shown is of simple pattern and easily made. Then there is the elastic tension pull applied to the foot to



Vertical fracture extending completely through astragalus—normal function.



Vertical fracture temporal bone. Fracture extending through squamous and petrous portion of temporal bone and passing through external auditory meatus to glenoid fossa. Perfect freedom of jaw motion.



Avulsion of first phalanx (with epiphysis) of index finger. Good functional result.

prevent toe drop, as well as the metal splints applied to the plantar surface. The areo-splint is another type quite frequently recommended, although difficult to apply by the ordinary practitioner.

Finally, because of the widespread prevalence of these injuries, the result of automobile transportation, there is great need for more thorough understanding of the orthopedic principles in the care of joint fractures, as function and not ankylosis is our goal. To meet this new demand our profession must discard many of the traditional teachings of the past two decades and turn to the more promising results secured by the later methods of treatment, the requirements of which may be best summed up in the phrase first used by Willems—"Immediate voluntary active mobilization."

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DISCUSSION.

W. W. Grant, Denver: I would like to make a few observations concerning the practical aspect of this paper. I believe now it is a principle among surgeons that in case of fractures entering a joint it is not good surgery to put drainage material into the joint proper. You may drain from the capsule out, but no drainage material should be inserted into the joint. It is a question still with many surgeons, in many of these various forms of fractures, as to the extent of operative intervention.

G. W. Miel, Denver: I would like to say a few words, Mr. Chairman. It has been my experience to stick pretty well to what I was taught some time ago. In taking an injury to a joint under treatment, or the injury of a leg or a foot, I generally preface the treatment by saying that a dog knows enough to keep off a sore leg or a sore foot. Now, notwithstanding what has been done in the war, which we are certainly glad to profit by, and the benefits that have come from it, in the treatment of joint fractures we are not getting away materially from the principles found in the old text books. Dr. Tennant's paper is certainly one that I have enjoyed greatly, and it is only in this principle that I feel I have to differ with him, because I know it is not only Dr. Tennant advocating it, but it is popular today to advance that kind of treatment. I might cite cases, a few of my own, in which I could be borne out by statistics, or in individual instances, treated on the plan that I have been following and that most of us have been following along common lines, with satisfying results. In speaking to some good textbook men several years ago, who were here at the meeting of the American Surgical Association, Dr. Pilcher and Dr. Roberts, I had occasion to say that it had fallen to me to review several works upon surgery—I don't know why, for I was only able to do so in a general way; but I said there was one thing I studiously avoided, and that was to say this book filled a long-felt need. I recognize the progress of medicine has been a matter of building, where some are privileged to lay one brick and others several; and think we should be reluctant to get away from the fundamentals built during the past twenty or thirty years. In my observation a number of promising cases of joint fracture have retrograded by reason of the too early discontinuance of supporting treatment and too early use of the injured joint.

Dr. Tennant (closing): I will be very brief, as the time is passing rapidly. Just three points I wish to emphasize once again: First, we are striving to get away from the old traditions of treatment of these injuries as outlined in our textbooks, for the sequence of this treatment means stiff joints. Second, function is the goal and fully justifies a radical change from the older methods of treatment. As Dr. Golden said in discussing Dr. Bancroft's paper, what we need is more of the intensive individual care of the patient, and that is just exactly what this means. Third, the penalty which often comes in restricting these limbs in their normal motion, in the movement of the several groups of muscles, and in the interference with the circulation by the use of plaster casts is atrophy. Why not avoid this? I grant there are instances where it is necessary to use the older methods, but we must improve upon them. The technical books and traditions we have so long followed lead us far afield when function is our goal.

INDISCRIMINATE DIAGNOSIS OF TUBERCULOSIS.

MAURICE LEVY, M.D., DENVER.

For years past the general practitioner has been severely criticized for the tremendous percentage of cases of pulmonary tuberculosis that have not been diagnosed as such until they are moderately or far advanced. Improved methods of diagnosis, notably the x-ray, together with the knowledge that the most desirable end-results are usually obtained in inverse proportion to the amount of pulmonary tissue involved, have fortunately stimulated the desire to diagnose this condition as early as possible. Several competent clinicians have set an exceedingly high standard for themselves—the diagnosis of their cases at the very beginning of the incipient stage. Careful investigation and experience have led to the belief that after infection of the lungs with tubercle bacilli, and with the establishment of actual disease, the patient exhibits more or less evidence of toxemia, and possibly some slight percussion and auscultatory changes in the chest; or that the cardio-vascular system shows evidence of fatigue which will cause a lowering of blood-pressure within a few minutes if taken with the patient erect after lying supine.

This laudable attempt, however, to diagnose cases earlier, has caused the pendulum to swing so far that there are now individuals who are stigmatizing patients as tuberculous who present any indefinite toxic condition which cannot readily be diagnosed as anything in particular. Various names are being assigned to this exceedingly early stage, chief amongst them "Latent Tuberculosis", "Concealed Tuberculosis", "Occult Tuberculosis", "Peribronchial Tuberculosis" and "Pretuberculous Stage". It is to the possible indiscriminate and dangerous use of such terms that I wish to invite your attention.

Experience has taught us that pulmonary tuberculosis in its very incipency may manifest itself in a variety of symptoms similar, in many respects, to those of other diseases. I refer particularly to intestinal autointoxication, neuro-circulatory asthenia, neurasthenia, functional derangement of endocrine glands, focal infections, etc. Any one, or all, of these conditions may present a symptom complex similar in almost every detail to that shown by symptomatic pulmonary tuberculosis. The various symptoms chiefly sought for are lassitude, easily induced fatigue, slight elevation of temperature, increased pulse rate, loss of weight, "nervousness", anorexia, etc. Cough and expectoration may or may not be present. Nor must all of these symptoms be present—most any group or combination seems to be sufficient for a diagnosis. Positive sputum, of course, is conclusive. But where there is symptomatic evidence alone, with no other corroboration, the condition that we then have is only suspicious of pulmonary tuberculosis.

There may be some question as to what con-

stitutes corroborative physical evidence indicating pulmonary involvement of tuberculous origin. If a given patient were of normal development then great stress could be laid upon any deviation from the normal—even the very slightest breath sound change or impaired resonance would be of value. We have, however, no set standard that we can go by. The findings depend entirely upon the examiner and his ability to detect fine changes—fine changes which experience only can pick out. What may appear to be abnormal and pathological in one individual may be perfectly normal in another. When we find what appears to be slightly impaired resonance at an apex, or roughened breath sounds, or even what we think high pitched or slightly prolonged expiration over a certain area, what guarantee have we that this is not the normal for that particular individual? In discussing whether signs discovered at the right apex are indicative of a physiological or pathological state, Landis¹ writes as follows: "If the patient has had none of the symptoms common to pulmonary disease, either in the past or the present, the signs may be interpreted as being physiological; if, on the other hand, there have been symptoms, the physical signs may be interpreted as being due to an arrested or to an active lesion, depending on whether the symptoms have occurred in the past or are present at the time of observation". In other words, the same physical signs may be physiological or pathological depending upon the patient's history. Are we justified in allowing slight abnormalities, which may prove to be perfectly normal, to influence to any great extent in making such a serious diagnosis as pulmonary tuberculosis? Particularly, when we remember that it is necessary to exercise caution even when there is distinct evidence of a pathological condition in the lungs, for as Otis² states, "Although, as we all know, pulmonary tuberculosis is far the most frequent chronic affection of the lungs, yet the physician must always bear in mind that he may, at any time, meet with conditions suggesting both in symptoms and physical signs tuberculosis, but which may have an entirely different etiology."

We must ever bear in mind the fact that once the diagnosis of pulmonary tuberculosis is made to the patient he is never the same. It means a complete readjustment. The patient goes through a transformation that will always leave its tell-tale mark behind. Its far-reaching results affect even the members of his immediate family. He may be advised to stop work, or to change climate or to enter a sanatorium, all of which entail hardships for himself and family, particularly if there is any financial embarrassment. His mode of living changes and he passes through a period of trying anxiety. It may be years before he regains his self-confidence; in some cases never. Is it justifiable to sentence a man to all this merely because he acts like a neurasthenic and presents a few abnormal signs that may be normal?

Intestinal autointoxication may present every symptom or group of symptoms that is peculiar

to latent, occult or concealed tuberculosis. It will not cause cough or changed lung signs but apparently these are not essential to make the diagnosis. There are innumerable cases of intestinal autointoxication with daily bowel movements and there will always be a tendency to confuse them with latent, occult or concealed tuberculosis until we are able to diagnose the latter by some method other than symptomatic. Neurasthenia, a definite clinical entity, whether a symptom or a disease, present everywhere and in huge numbers, will always prove a stumbling-block until it can be eliminated by other methods of diagnosis. So close is the similarity between neurasthenia and very early tuberculosis that Head³ claims that all patients with neurasthenia of undiscoverable etiology, who give a positive tuberculin reaction, should be classed as "Concealed Tuberculosis".

Geyser⁴, who uses the term "pretuberculous stage", says: "It may be true that some of the cases diagnosed as in the pretuberculous stage would never develop the real disease. When we reflect upon the fact that every child before the age of twelve years has been infected, that ninety-five percent of all cases coming to autopsy show signs of healed tuberculous lesions, that one out of every eight persons dies of tuberculosis, it is safer to run the risk of treating an occasional or even quite a number of such cases and restoring them to health clinically, than to run the risk of letting a single one escape and develop the disease beyond human aid." He therefore recommends what almost amounts to promiscuous diagnosis, claiming it is safer, rather than let a single one escape.

Sewall⁵ speaks of "Occult Tuberculosis" by which he means the vast group of cases who suffer from tuberculous intoxication, but who do not present the signs of "clinical tuberculosis", the outstanding features of which are nervousness, neuromuscular asthenia, easy nervous exhaustion, instability of will. He claims they manifest a general functional insufficiency and lack of staying power which can be brought out by submitting them to slight physical strain, and that the most valuable objective sign of occult tuberculosis is to be found in the reaction of the blood pressures to slight strain such as is induced by assumption of the erect posture after lying supine—an abnormal lowering of pulse pressure and its tendency to progressive subsidence when the erect posture is assumed. He attaches importance to the presence of vocal bronchophony of distinctly higher pitch than in the normal subject, particularly if present at the back of the chest from the level of the roots of the lungs upwards. He also states that in these cases "there may be no demonstrable percussion dullness, or change in the respiratory murmur or muscular tension of the affected apex, still less are there adventitious sounds of râles, but all of these signs may be present, as it were, by suggestion". (Emphasis mine.)

Head⁶ describes his "Concealed Tuberculosis" as lesions so mild in degree as to escape detection by the usual methods employed, and after describing the peculiar and uncertain man-

ner in which the onset of tuberculosis may manifest itself symptomatically states that "Even in the hands of the most expert, if tuberculosis is suspected, only a doubtful diagnosis or one with a question mark after it can be made". He also states that "Such a diagnosis cannot be utilized in scientific reasoning and must be substantiated by a specific test in order that definite conclusions can be reached. In most instances the clinician is not sure enough of his ground to state his conclusions to the patient and give the individual the advantage which is almost always derived from the intelligent management of the disease". His contention is that all patients with a symptom complex similar to that presented by the onset of tuberculosis, and to account for which no definite causal factor can be found, should be given a subcutaneous tuberculin test to determine whether or not they harbour a tuberculous lesion, for the confusing clinical picture presented by these slow, low-grade tuberculous toxemias cannot be otherwise interpreted. McMichael⁷, who states that the term "Latent Tuberculosis" may be applied to the period between infection and the development of sufficient damage to enable us to recognize tuberculous disease, claims emphatically that in the absence of definite signs tuberculin should be used to recognize latent tuberculosis.

This brings up the question of tuberculin, subcutaneously used, for diagnostic purposes—another point upon which there is no general agreement. Landis¹ states that the use of tuberculin for diagnostic purposes has been abandoned almost entirely because the method is not free from danger and does not serve to distinguish between the lesion which is arrested and the one which is about to become or is active; that tuberculin tests, with the exception of the focal reaction following subcutaneous injection, are to be looked upon as indicating that the organism has become sensitized to the tubercle bacillus, and that they do not indicate the existence of active tuberculosis which demands treatment.

Fishberg⁸ claims that "A hasty diagnosis of tuberculosis may prove just as dangerous as neglect to recognize active and progressive disease". He advises careful watching before making a diagnosis, that if the case really is one of early pulmonary tuberculosis there is no immediate rush.

The complement-deviation test may possibly be of assistance in making an early diagnosis, but it is as yet too recent to admit of judgment as to its real value.

Roentgenography is of inestimable value in assisting in the diagnosis of pulmonary tuberculosis but its sphere is still limited, for as Landis¹ states "the proof is as yet forthcoming that the roentgenologist can differentiate the lung shadows due to a tuberculous infection and those due to other pathological states, nor can he distinguish between an active and a healed tuberculous lesion".

I do not wish to give the impression that I deny the existence of latent, concealed or occult tuberculosis. On the contrary, there is no ques-

tion in my mind that pulmonary infection with tubercle bacilli is generally exceedingly insidious, and that the progressive involvement is usually slow. I believe the conception of most clinicians is that infection is only rarely followed immediately by disease, that there is usually an interval of several years between infection and clinically demonstrable pulmonary tuberculosis. I feel that one is justified in believing that at some time early in the actual development of disease there is a sufficient amount of toxin formation and dissemination to cause untoward symptoms, a toxemia of more or less severity, but I do deny that evidences of toxemia are in themselves sufficient to justify such a serious and far-reaching diagnosis as tuberculosis, whether latent, occult or concealed. A diagnosis of tuberculosis under such circumstances is unfair to the patient. If his diagnosis becomes known to his relatives or friends they cannot understand the significance of such terms as occult, latent or concealed, and that their import is usually far from serious, but the term tuberculosis, meaning dreaded consumption, does signify a great deal to them. How many laymen are there who do not have more or less phthisiophobia? From then on the patient is more or less ostracized. His family is known as one which has the taint of tuberculosis in it; they even have difficulty in securing life insurance, for as Minnig⁹ points out, one insurance company asks: "Have you in the past five years lived seven nights in the same house with a consumptive?" If the applicant replies in the affirmative he is rejected! Does the patient deserve all this because his physician's hobby happens to be tuberculosis?

The furtherance of the use of such terms as occult, latent and concealed tuberculosis is a distinct menace. The conditions diagnosed by these terms are highly indefinite. They can neither be satisfactorily proven nor disproven. What is to prevent an unscrupulous physician or quack from adopting these terms as a routine diagnosis in all indefinite conditions that he cannot satisfactorily explain? Can we conscientiously accept and use terminology that may some day react upon us like a boomerang? Possibly if some form of terminology could be developed which would convey the same meaning, even using the terms latent, occult and concealed but leaving off the word tuberculosis, the diagnosis could then be made harmless as far as the patient is concerned. Instead of condemning our patient on a guess diagnosis we could then make all the diagnoses that we cared to without unduly disturbing his peace of mind. The patient who comes to us for assistance is surely entitled to this consideration.

My appeal is for conservatism; not of the ultraconservative type which demands a well-defined physical lesion with positive sputum, but a rational and fair conservatism. In view of the fact that so many other conditions resemble the symptom complex of early pulmonary tuberculosis, and that we have no undisputed specific test for differentiation, except perhaps the dangerous focal reaction of tuberculin, it is only

reasonable that one should seek some definite corroborative physical sign or signs that would point indisputably to a pathological pulmonary condition before making a diagnosis of a toxic pulmonary involvement of tuberculous origin. Even if one were morally convinced that the patient really has a non-demonstrable toxic tuberculous condition the question arises whether it is essential to the patient's welfare and improvement to know the true condition that is suspected, for we know beyond question that the great majority of these cases clear up *per se* under the same routine treatment of rest, etc., that is resorted to for conditions with a similar symptom complex. This is not suggesting that we deceive the patient as to his true condition, but merely raises the question of the advisability of alarming him with an unnecessary and disconcerting diagnosis with the deliberate selection of the most serious diagnosis from a field of several possibilities.

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DISCUSSION.

O. M. Gilbert, Boulder: I think this is a most timely paper of Dr. Levy's, and one that should be very thoroughly discussed. I think in the main he is right in his contention. He speaks of the pendulum swinging. However, it is the natural law of physics for the pendulum to swing, and I think it is right it should swing, even though it should swing a little too far. On the other hand, it is the normal action from the terrible state of affairs which we have had to contend with in the past in a tubercular way, and especially with regard to what we now say or speak of as the last stage of tuberculosis. The last stage—and no wonder there was that degree of pessimism toward it that there was, because it is well known that in such condition tuberculosis is almost hopeless. On the other hand, I don't think there is anything in the entire category of medicine that is more hopeful than is a case of tuberculosis diagnosed in the proper stage and proper cooperation gotten from the patient and a proper understanding of what it all means. So I am willing to have the pendulum swing a little bit to the extreme, if it need be. We must face these facts that we have—the two extremes of the picture—the advanced stage of tuberculosis as well as the other extreme, or the most harmless, you might say, infection, which might lie dormant and the patient die at the age of one hundred and never know he had it. There is every gradation absolutely imperceptible between those two. Somewhere we have got to take an arbitrary position as to what constitutes tuberculosis. Some of our men—one man in my town, for instance—simply takes the pathologist's view, so to

speak, that it is all tuberculosis; that every man that has tuberculous infection and reacts to tuberculin has tuberculosis; holding that it is just as absurd to talk about tuberculous infection as to talk about malarial infection. Opie in one research and Opie and Anderson in another, reported in the last two years in the Review of Tuberculosis their work in the Washington University, and finally have arrived at the conclusion that for all practical purposes we may consider the adult human being as tuberculous, as having tuberculous infection; and they go further and say that there is no place that the line can be drawn logically between tuberculous infection and tuberculosis. If we say, limited to the peribronchial lymph glands and hilus glands, they have exploded all that. In many parts of the body lesions have been found and they demonstrate a number of cases of healed tuberculosis in the meninges. Somewhere we must draw the line, and I think we are sometimes forced to resort for practical purposes to the oldtime, much-abused expression of "infection threatening to spread". I always use such an expression with apology. Now, you may be asked to arbitrate the matter, when the patient is in a position on the border line, one physician saying tubercular infection and the other saying a mild or incipient case (and I think we should do away with the term "incipient," especially when the case is moderately advanced, and use the term "minimal"). Now, I believe that a practical solution of the difficulty is an intelligent explanation to the patient as to what the status of our knowledge is and what the conditions are regarding tuberculous infection; and that there is a stage when these things are just reaching out a little bit, so to speak, and cause the same symptoms which heretofore have not been recognized, and that if such infection is guarded, an active condition of tuberculosis will not develop. Auto-intoxication, I have no reason to seriously consider with tuberculosis. I believe, along with some others, that Mitchell's great reputation, which is absolutely world wide, and justly so, is his because he treated a great many cases of tuberculosis and made use of the x-ray, which is one of our greatest means of diagnosis; and yet I do want to protest against that one type of x-ray man who is assuming to make diagnoses of border-line conditions without any clinical aid, one going so far as to say what kind of climate he should seek and how long he should live under certain conditions. That is certainly usurping an authority he is not entitled to. Tuberculin, I find, is helpful in border-line conditions, particularly when you get focal reactions. It is not dangerous when it is properly managed, and it is particularly of hopeful import when you get an "inactive" diagnosis, and when there is not even a tuberculous infection.

PSYCHOTHERAPY IN CONVULSIVE DISORDERS.

Being the Report of a Case and Some Discussion
Made to the Clinical and Pathological
Society, October 11, 1921.

EDMUND J. A. ROGERS, M.D., DENVER.

Mrs. J. K., born September 13, 1890.

Her father was a well-known practicing physician in Denver. He suffered throughout his life from migraine headaches. Her mother had also suffered from the same disease. The patient's mother, though always cheerful and bright, apparently was always more or less neurasthenic, being easily fatigued and often completely exhausted. The patient was nervous and unstable throughout her childhood. She had frequent very severe attacks of sick headache, which were generally ascribed to her stomach.

She did her school work easily but spasmodically and was a voracious reader, principally of heavy subjects. She had typhoid fever in childhood.

She had finished her third year in high school when she was married at the age of seventeen, in July, 1907. Her husband was a tubercular invalid. They traveled much and were very happy. She was confined at the Mercy Hospital in October, 1908; a very difficult instrumental labor; the child was born dead. Her husband died in October, 1909, after which she became much depressed, physically and mentally, and lost all interest in life. In the summer of 1910, during a visit in Quincy, Ill., while riding in a motor with some lady friends, she had an attack of convulsions following a severe headache. She became profoundly unconscious and her tongue was badly lacerated.

She immediately returned to Denver and, within a few weeks, fell upon the street in a second convulsive attack and was taken home by her father perfectly unconscious and without any memory of what had occurred. In the hope of relief, an extensive pelvic reparative operation was performed. Before leaving the operating table she had a third attack. The operation was satisfactory, but after it the attacks came irregularly, with more or less frequency.

The attacks now came to occur mainly during the night in her sleep. Before them she usually had a peculiar, indescribable feeling in the head. They were accompanied and followed by profound unconsciousness and during them she usually lacerated her tongue badly. The diagnosis of epilepsy was made and she was placed under a bromide treatment, which was constantly continued until 1917.

She was married a second time in 1911 to an old friend of her former husband and one who had known her since her childhood. After this the attacks were mitigated in some degree until 1913, when they again grew worse and gradually increased in frequency and severity. There soon came to be always great depression and this peculiar feeling in the head before each attack. They generally came during her sleep, and before she recovered consciousness there was generally a recurrence of one or more attacks. She usually remained unconscious until the middle of the following day, and the return of consciousness was accompanied by a very severe headache and by great stiffness and soreness in the back of her neck and head which usually lasted for two or three days. She grew gradually worse and worse, her memory became more and more defective, and she felt herself that she was gradually failing in mentality. These severe attacks came to occur every ten or fifteen days and she spent three-fourths of her time in bed. Her husband states that her time seemed occupied with getting ready for attacks and slowly recovering from them.

During this time she twice entered sanatoria for a few weeks for a rest treatment, during which time the attacks intermitted, but immediately recurred on her again returning home. She consulted several specialists and other physicians, but the diagnosis of epilepsy was the

only one that was ever given. She was constantly under a treatment by bromides in some form and seems to have been often saturated with them.

Her father died in August, 1917. A member of this society, who was his close friend, tells me that the last years of the father's life were deeply clouded by the conviction that his idolized daughter had become overwhelmed by a terrible and incurable disease.

She was strongly urged by a mutual friend and came to me for mental treatment on September 28, 1917. She was now practically discouraged and spent much of her time alone and crying, but she grasped at this chance of gaining assistance. She willingly gave up all other treatment and placed herself entirely under my care.

During the remainder of the year 1917 she came to my office nearly every day. The severity of her attacks began at once to be gradually modified, the first indications of improvement being a lessening of the severe headaches after the attacks and a shortening of the period of unconsciousness. By January, 1918, there was a marked amelioration in her entire condition. The attacks now often came without warning, and recovery after them was rapid and complete.

During February, 1918, the sudden death of her mother greatly prostrated her, but she quickly rallied and again improved rapidly. She continued to come occasionally to my office, but early in May she felt well enough to visit her friends in Illinois. They were astonished at her general improvement and urged her to return and continue the treatment. She believes that she had no attack while with them.

Early in June she returned to her home in Englewood. Soon after returning, while about the house during the morning, her husband heard a disturbance, and going quickly to her, found her on the floor, with an injured and very painful shoulder. She could give no account of how she had fallen and hurt it, so had probably had an attack. He at once sent for a neighboring doctor, who pronounced her shoulder dislocated. He gave her an anesthetic and pronounced it reduced. She remained in her home for some weeks, but her shoulder constantly gave her great pain.

On June 26, 1918, she came to me, and I found a downward dislocation of the humerus. I at once had an x-ray examination made and placed her in St. Luke's Hospital. The shadow showed not only the dislocation but a vertical separation of the greater tuberosity. It is, of course, impossible to say whether or not this displacement was sustained during an attack subsequent to the first injury. Her bones were so small and she was so slight that I greatly dreaded any manipulation of the parts, but on the 28th, with Dr. Freeman's cooperation, under an anesthetic, we completely and satisfactorily, but with much difficulty, reduced the condition. The repair of her shoulder was rapid and complete.

After this her general condition improved rapidly. The attacks also became slighter and slighter, and the intervals between them longer, though still occurring irregularly. She would

now sometimes fall without warning in an attack, and in a few moments recover completely and resume her occupation. She lost all fear of their recurrence and her mind became more and more normal. Her weight improved from ninety-seven pounds in the beginning to one hundred and thirty-two pounds.

During 1919 she came to me much more infrequently and she would now often go for long intervals without any attack, while her general condition grew more and more satisfactory. Her menstruation, which had ceased at the time of her confinement, now under direct, systemic suggestion, returned, at first very irregularly, but the condition has gradually become more and more normal.

The only occasion on which I saw her in an attack was in the fall of 1919. She called me because she had had a slight one and remained in bed. Soon after I arrived, while beside her bed talking to her, she had a typical epileptic attack, which, however, was not long or severe. She was quite unconscious of having it, and up to this report was not aware that it had occurred.

Early in 1920 she had a slight attack, but since that time she believes that she has not had another. I saw her very occasionally during that year. During the early summer she had a severe sprained ankle, from which she recovered quickly and completely.

On July 16, 1920, while driving with her husband late in the evening, she experienced the old peculiar aural feeling, but at once came to my office. A short talk and rest rendered her all right and the fear passed off immediately and she had no further disturbance. On November 30, 1920, while listening to her husband arguing a case in court, the same feeling returned. She telephoned to me and I met her at her residence. Again complete relaxation with suggestion entirely removed the sensation and the fear, and in an hour she was getting her husband's dinner ready for him. During the last two years she has had much trouble with her teeth and has been almost constantly under treatment with the dentist.

During my recent prolonged absence from Denver she was operated upon, in August, for appendicitis, but has made a good recovery. She states that the only scare she has had about her old attacks was that, on recovering from the anesthetic, she found her mouth very sore. The anesthetist, however, voluntarily explained to her the next day that he had been obliged to use considerable violence in order to keep her tongue in position during the operation, but that there had been no other disorder.

She is now (January, 1922) well recovered and in very good health. She feels herself entirely free from the old attacks, which she believes finally disappeared in the slight attack in the beginning of 1920. I have given her no medicinal treatments since she came under my care.

In the discussion, in answer to a question by Dr. Neuhaus as to what other experiences he had had in convulsive diseases, Dr. Rogers said:

Allow me to say that, during some forty-four years of constant medical work, I have seen my

share of these disorders in almost every variety.

Among these cases, of course, were various forms of hysteria. During recent years I have found the response in these cases is generally in direct ratio to their acuteness. I have seen several cases of acute hysteria, even with major symptoms, recover apparently completely with one visit. I seldom feel any confusion in the diagnosis of such from epilepsy, even though they may closely simulate it. I have had a few cases where one or more convulsive attacks have occurred closely simulating true epilepsy, in which recovery has been apparently complete, though I did not feel justified in making the extreme diagnosis because my period of observation seemed too short. On the other hand, when the disease had become chronic it seemed to me unreasonable to expect any sudden change, because the alteration of a crystallized mental attitude must necessarily be a slow and gradual process.

One seldom has a chance of following up cases of chronic epilepsy, for in them not only is the mind of the patient, but also that of his friends, so strongly fixed upon the desperateness of the condition that there is no opportunity of approach. The suggestion of any radical material procedure, operative or otherwise, is readily grasped, but anything so simple as a mental treatment seems meaningless to them and is generally at once rejected; even should the patient be desirous of such treatment, the attitude of his environment is generally too antagonistic to allow hope of success.

I have no question in my own mind that each of us is constantly unconsciously making to everyone about him suggestions of health or disease. If we fully grasp the power of suggestion, we at once realize that the effectiveness of such environmental suggestion will be in proportion to the mental closeness of the persons concerned and will be much increased by the purpose in the mind of the suggestor.

This was well illustrated in the case of an adolescent boy who was brought to me in 1918, and came to my office thirty-six times. I, however, never succeeded in arousing his interest, and he simply came at his mother's urgent solicitation and never showed the slightest sign of expectant attention. I afterwards learned that his environment was positively antagonistic; indeed, that his father absolutely opposed his coming and discouraged the idea of such treatment producing any benefit whatever. Also in one other case of confirmed epilepsy the result was absolutely unsatisfactory. This was that of a man between fifty and sixty, a locomotive engineer, with whom the first attack had occurred several years before, and the disease had become chronic, so that he had to give up his work. He came to me over a period of several months and at times seemed to show some benefit. His attitude, however, seldom rose above that of tolerant indifference, and I was led to believe that his environment lacked enthusiastic cooperation, and finally he stopped coming from want of interest.

In other organic brain conditions such as the

paroxysms in senile arteriosclerosis I have seen very satisfactory temporary results in several cases. I have also in chorea and in puerperal convulsions seen instances which lead me to believe that a mental treatment is of positive benefit.

It must be remembered that the claim of the cure of epilepsy by psychotherapy is not new. Wetterstrand of Stockholm claimed to have cured several cases, and his wonderful results in almost all phases of disease, as well as his broad knowledge and experience in medicine, entitle him to credence, though he gave us but little data on which to base an opinion. Recently the psychoanalysts are claiming good results with apparent justification.

222 West Colfax Avenue, January, 1922.

A LETTER FROM MADEIRA.

[Dr. Wetherill, basking and basking under the sedative sunshine of a far-off land, has become so imbued with the subtle atmosphere of his little island that he has been able literally (and alliterally) to bring the editor to his side for the few short minutes spent in reading his descriptive letter, the recipient of which, Dr. Melville Black, has kindly allowed its publication. That Madeira falls a little short of Paradise in harboring at least some of the ills of mankind must be admitted by Dr. Wetherill, for in that delectable spot he sustained, through a fall, a "crack" in the neck of the femur which he hopes will heal without deformity. He will likely claim that in any other country it would have been a complete fracture with shortening.]

Dear Doctor Black:

We left New York, according to schedule, on November 19th, in the "good ship" Cameronia; and she proved to be "as steady as a church", though it would have been much more appropriate if she had been given the name of a boat I had when a boy and called the "WEKNOWSHE-GOESSLOW", a good Indian (?) substitute for Cameronia.

We ran along about fifteen miles an hour over calm seas through an unbroken succession of bright, warm and beautiful days. Nobody on board appeared to suffer from mal de mer, even the most susceptible, and as we sailed farther south and east, getting more into the Gulf Stream, the air became steadily warmer and balmier.

It was interesting to learn that nearly all the staff on the boat had served in the British navy during the World war, and that over sixty percent of them had been torpedoed at one time or another. The tourist director went down with the Royal Edward in the Dardanelles, and was the only officer saved, fifteen hundred men being lost. The surgeon had been "sunk" twice, once on a hospital ship, and then on a hospital transport, and was horrified with his experiences in seeing helpless cripples go down with the ships. Our Captain (Blackie) had his ship sunk in the Mediterranean, was captured and taken to Germany, where he was tried for attempting to ram a submarine, was convicted and condemned to be shot, as was Captain Fryatt, and only the threat of reprisal by the British saved his life,

though he was imprisoned two years, six months of which was on bread and water.

So we had an interesting crew, with many yarns to spin, but it was hard work getting them started.

We landed at Funchal, Madeira, November 27th, coming to anchor before the picturesque array of white and buff and blue and pink houses with tiled roofs spread out over the precipitous hillsides in the glowing morning sunshine. This was at last the realization of a dream of years, for we had touched here once before in going to Egypt in 1907, and had vowed then to come some time again for a short stay, at least; and now that we must soon go on we have found it all too short.

For fourteen years I had dreamed of Madeira as the most beautiful and delightful spot on earth next to Taormina, Sicily, and it is a joy and a delight to have had these dreams materialized.

Madeira is off the west coast of Africa (Morocco), and is about thirty-two degrees north of the equator. It is thirty-three miles long and fifteen miles wide, and its highest peaks are somewhat over six thousand feet high.

Its people are of Portuguese origin, and it is Portuguese territory. Its temperature is uniform and free from sudden and extreme variations, its humidity is low, and its days of sunshine exceed those of Colorado. For years it has been a favorite place of resort for English and continental tuberculous invalids, though these are rarely seen or encountered.

Its people are clean, industrious and picturesque to the last degree, and, though it is a land of the vine where wine is good, abundant and very cheap, there is little drunkenness among them, and they are a law-abiding and highly courteous and self-respecting people.

The vegetation is semi-tropical, with palms and oranges and sugar cane abundant, and the trees are full of the songs of innumerable wild canary birds trilling and warbling in the soft sunshine.

The narrow and tortuous streets, flanked by well-built, high stone walls, behind which are wonderful gardens, are filled with interesting sights and weird sounds. The pavement is made of small water-washed pebbles gathered from the beaches, and is laid with great artistry and skill in intricate scrolls and geometric designs, and looked down upon from above has the appearance of a conglomeration of petrified kidneys. Over these smooth, hard cobbles the "caros", drawn by small, active bullocks, glide and slide with great ease, and the basket sleds slip down the steep streets guided by two fleet runners. One may ride up these same hills on horseback, or be carried in a hammock on a pole by two bearers, but he cannot ride in a horse-drawn carriage, for none is to be had. Four years ago a few automobiles were introduced, and they may be taken for certain limited drives, but it is much regretted that this new device for disturbing the peace and quiet and deliberation of the place should ever have arrived.

The guiding, intoned call of the driver to his bullocks, and the cry of the boy courier as he runs ahead and gives warning of our approach at corners and turns, add much to the setting of the stage for new and delightful sensations.

The lights and shadows over the mountains and valleys, the many colored houses scattered over the hillsides, the masses of color in flowers and trees, the blue purple or aquamarine sea depending upon the cloud effects, the gorgeous sunsets and the lowering east where the "dawn comes up like thunder", keep one in an ecstasy of exclamations from dawn to dark.

The snug little harbor behind Loo Rock and protected by the great headland promontories to the east is a never-ending and ever-changing object of interest.

Here are the true cross roads of the Atlantic, for ships from England, France, Portugal and America, bound for the West Indies, South America, the west coast of Africa, the Canary Isles and Teneriffe, Gibraltar and the Mediterranean, touch at Funchal coming and going, and the scene is an ever-changing one of transatlantic cross currents, and the town is ever astir with the conglomerate congregation of cosmopolitan clans.*

Nor did this secluded little harbor escape the tragedy of the war, for resting upon its bottom are three ships—one French and two English—sunk by a German submarine one fine morning in September, 1917—thirty French sailors losing their lives as a consequence. There has been erected in Funchal an appropriate monument in memory of these martyred men, and only about a week ago very impressive ceremonies were held on the occasion of the removal of the bodies of some of them on French battleships to la belle France.

Awakening these fine mornings with wide French windows thrown open to a medley of soothing sounds and the soft, warm air and sunshine percolating through the mosquito netting over the bed, one has difficulty in realizing that it is nearly Christmas.

The calls of the fishermen, the ships' bells marking the hour, the cries of the boys diving for coins, the rumble of a running anchor chain or the rattle of a winch, the far-away bugle calls and the tooting of the tugs, are blended with the twitter of blackbirds among the palms or the rolling and warbling of the wild canaries as the soft light of the rising sun comes over the purple sea to start another delightful day.

And as we stroll through the beautiful garden after breakfast we meet by chance the exiled emperor, Charles Hapsburg, and Zita, his wife, who have a villa in the hotel grounds, and we wonder if their enjoyment of this beautiful spot is equal to our own.

So much depends upon the point of view.

Yours as ever,

H. G. WETHERILL.

*I was slightly "C" sick after writing this.

News Notes

Dr. W. V. Mullin of Colorado Springs lectured before the Fremont County Medical Society at the December meeting upon the subject, "Accessory Sinuses as an Etiological Factor in Bronchiectasis."

The town of New Raymer, in a dry land community in eastern Weld county, is offering a \$200 bonus to any doctor that will locate there permanently.

A doctor with a very thriving practice in the Fort Lupton district wishes to get away for three or four months and will offer his substitute an opportunity of remaining with him after his return. Consult the Editor.

The residence and office of the late Dr. G. P. McKenney, 3025 Grove street, Denver, are for sale. Telephone, Gallup 1742.

Dr. W. A. Sedwick of Denver left for California on February 4, to be gone for a period of several months. Dr. C. N. Needham will serve as acting treasurer of the State Society during Dr. Sedwick's absence.

The death of the wife of Dr. Edward Jackson of Denver occurred on January 28. Dr. Jackson can be assured of the deep sympathy of the members of the Colorado State Medical Society.

Dr. J. L. Mortimer of Denver returned from California on February 3 and has resumed his practice.

Under the new plan for examinations by the National Board of Medical Examiners, Denver has been designated as one of the centers for part III of the examinations and the local board of examiners has been appointed, headed by Dr. D. A. Strickler as chief examiner. The other members and their subjects are as follows: Anatomy, Dr. Frank E. Rogers; Pathology, Dr. Philip Hillkowitz; Bacteriology, Dr. W. W. Williams; Medicine, Drs. J. N. Hall and C. N. Meader; Surgery, Dr. Leonard Freeman; Physiology, Dr. Henry Sewall; Obstetrics and Gynecology, Dr. C. B. Ingraham; Materia Medica and Pharmacology, Dr. Maurice D. Rees; Physiological Chemistry, Robert C. Lewis, Ph. D.; Public Health, Dr. J. W. Ames.

Dr. C. D. McKenzie of Denver underwent an operation on February 2 for acute appendicitis, from which he is now recovering. Dr. Fred H. Carpenter is taking care of Dr. McKenzie's practice during his illness.

Dr. Leonard Freeman of Denver, who left some weeks ago for a South American trip, is expected to return early in March.

Mr. J. G. McFadden of Loveland has been given the rank of captain and assigned to the medical reserve corps of the 412th Infantry, 103rd division.

Dr. E. L. Sadler of Fort Collins has been spending several weeks at the Mayo Clinic.

Dr. W. P. Harlow of Boulder has been designated as commander of the 328th Medical Regiment, 103rd Division, Organized Reserves, of the Eighth corps area and will have charge of the organization of the regiment. His rank is that of lieutenant-colonel.

Dr. C. F. Wilkins of Fort Collins has returned from a six weeks' visit in California.

Dr. L. M. Giffin of Boulder was injured in an automobile accident in the latter part of January, suffering a broken rib and severe bruises.

To see that justice is done, all just claims allowed and a proper rating of all patients established, is the object of a government hospital "cleanup campaign" ordered by the United States Veterans' Bureau, district No. 11. There are said to be 331 claims in this district to be adjudicated.

A physician who has been practicing in Denver for five years would like to assist a good surgeon with his surgical work. This doctor is a young married man with considerable experience and is competent. He has his own offices and practice but will not let this interfere with surgical work. See the Editor.

Dr. J. B. Salberg, Boulder, Colorado, Box 104, is seeking a location for general practice.

A card received by the Editor from Clough T. Burnett, postmarked "München", says: "I infried lore tonight smug tkeolae Rimfld. He was very fine. In Vienna march the enfere King. When I athem and am afraid some of my umsil friends watl bare to tehe fifty on me or shall item Am more gradually undoing on home. Here am spanking a wale in Müller's clinic. Good climate on ennfle lettem today."

Mr. Ture W. Schoultz, M. G., professional masseur and physiotherapist in the Metropolitan building, Denver, has taken additional quarters on the first floor of that building.

Antivivisectionist Activities were discussed at a recent luncheon at the Metropole Hotel, Denver, where members of the Medical Society of the City and County of Denver congregated in such numbers that many could not be accommodated and were turned away. Speakers representing the State Live Stock Association, the general public, research departments of the state universities and others were enthusiastic in their opposition to the proposed legislation. It was extremely gratifying to the doctors present to find that the Live Stock Association appreciate the practical value to stockmen of animal experimentation and are with us to a man in our opposition to this blow aimed at our science. The meeting served to awaken the doctors to the importance of a movement which many had not before appreciated.

Northeast Colorado News.

Dr. J. H. Daniel has just returned from New York, where he has been taking special instruction preparatory to specializing in x-ray and laboratory work.

In the past year four members of the Northeast Society have moved to Denver; they are Wm. Greig, Dare Woodruff, Geo. W. Barrett and C. S. Elder.

Drs. J. H. Daniel and N. Eugenia Barney were in Denver for a few days in January on business.

Dr. Louis Packard has been appointed health officer for Sterling.

There are now quite a good many cases of mild scarlet fever in this county (Logan) with a few deaths.

There seems to be very little illness here. The physicians are not busy, and the mild winter gives us good roads so that the work in making long drives is not unpleasant as is usual at this time of the year.

Dr. A. L. Marstellar, Wilcox, Neb., was a recent visitor here.

Dr. F. E. Palmer contemplates an early trip to Europe for several months' postgraduate study.

DEATHS.

The death of Dr. George P. McKenney of Denver occurred January 22. Dr. McKenney was born at Brotherton, Wis., in 1855 and graduated from Rush Medical College in 1890. He was licensed in Colorado in 1909, and has been a member of this Society since January, 1910. The cause of death was cerebral hemorrhage.

Dr. Arthur Lucius Davis, member of the San Juan Medical Society, died December 25, 1921, at the age of 53 years. Dr. Davis graduated from the Denver and Gross Medical College in 1895, and had practiced in Durango for twenty-two years. Of late years he had confined his practice to eye, ear, nose and throat.

Medical Societies

COLORADO OPHTHALMOLOGICAL.

The regular meeting of the **Colorado Ophthalmological Society** was held on November 19, 1921, in the office of Dr. A. C. Magruder, Colorado Springs, Dr. Magruder presiding.

A. C. Magruder, Colorado Springs, presented a youth, aged sixteen years, who had had congenital

cataract in each eye and had been operated upon by needling at the age of seven years. The case was shown on account of a very marked atrophy of the iris of the left eye, and also because of the great density of the capsular remains. Discussed by C. E. Walker.

E. R. Neeper, Colorado Springs, presented a young woman, aged seventeen years, whose right eye had a small dense opacity in the anterior capsule, to which were attached strands originating in the region of the lesser arterial circle of the iris. These were probably of the nature of persistent pupillary membrane. There was also a peculiarity of the muscular movements of the eyes, either eye turning up and out while not fixing. Discussed by C. E. Walker, W. H. Crisp and W. C. Finnoff.

E. R. Neeper, Colorado Springs, presented a man, aged thirty-three years, whose left eye had on October 6 been ruptured by a rock flying from an electrical drill. The other eye had been previously lost. There was a broad adhesion of the iris to the corneal scar. Should an operation be attempted to free this synechia? Discussed by C. E. Walker, J. M. Shields and G. F. Libby.

A. C. Magruder, Colorado Springs, presented a woman, aged thirty years, who gave a history of diplopia which occurred only when she looked to the left. The case was one of congenital absence or congenital paralysis of the left external rectus muscle. Discussed by W. C. Finnoff and W. H. Crisp.

A. C. Magruder, Colorado Springs, presented a woman, aged fifty-three years, who had suffered for about a year from a keratitis and an episcleritis, the latter of which had at one time or another attacked every part of the visible sclera, although at no time occupying more than one-fourth of the total area. The keratitis, but not the episcleritis, had been improved by removal of two diseased teeth. General and local examinations were otherwise negative. Discussed by C. E. Walker, W. A. Sedwick and W. C. Finnoff.

A. C. Magruder, Colorado Springs, presented a patient both of whose eyes had been injured in 1918 by explosion of a dynamite cap. The left eye had been removed. The case was shown on account of a peculiar position of the remains of the crystalline lens and for an opinion as to the advisability of needling the lens remains. Discussed by D. A. Strickler, W. H. Crisp, E. R. Neeper and C. E. Walker.

A. C. Magruder, Colorado Springs, presented a boy, aged thirteen years, each of whose eyes had distinctly subnormal vision, apparently due to a partial optic atrophy.

A. C. Magruder, Colorado Springs, presented a boy, aged seventeen years, each of whose eyes manifested an old chorioretinitis, posterior polar cataract and marked lateral and rotary nystagmus. The vision was extremely poor.

A. C. Magruder, Colorado Springs, presented a boy, aged seventeen years, who in July, 1921, had been injured in both eyes by an explosion of black powder. Two hours had been spent in removing the deposits of powder from the corneas. A few grains still remained in the sclera. Should removal of these be attempted? Discussed by W. C. Bane.

WM. H. CRISP, Secretary.

The regular meeting of the **Colorado Ophthalmological Society** was held on December 17, 1921, in the assembly hall of the Medical Society of the City and County of Denver, Dr. F. E. Wallace presiding.

J. A. McCaw, Denver, presented a man, aged forty years, who had had a series of hemorrhages into the vitreous of the right eye. Discussed by J. M. Shields, C. E. Walker, H. R. Stilwell, W. F. Matson and W. C. Finnoff.

W. C. and W. M. Bane, Denver, presented a woman, aged forty years, who had been operated upon for a tumor which almost filled the left side of the nose and extended into the inner canthus of the left eye. It had been removed through the nose, with

excellent results. Pathological examination by Dr. Stahl showed pure enchondroma.

W. C. and W. M. Bane, Denver, presented a boy, aged ten years, whose left eye had had defective vision since infancy. The history was negative except as to a fall from a buggy when the child was two years of age. The optic nerve of the affected eye showed a large amount of scar tissue which partly concealed the blood vessels and which obscured the disc margins. Discussed by C. E. Walker and W. H. Crisp.

W. C. and W. M. Bane, Denver, presented a woman, aged sixty-eight years, who had been brought before the society several times during the past fourteen years on account of pemphigus involving each eye. After x-ray treatment and a plastic operation on the left eye the disease in this eye had remained in check. The right eye had become involved much later, and had almost completely lost its vision. The epithelial layer of the cornea was very much thickened, rough, dry and opaque. The patient suffered no pain.

F. L. Beck for G. L. Strader, Cheyenne, Wyo., presented a man, aged twenty-eight years, who had had several punctate retinal hemorrhages in the right eye and one large flame-shaped hemorrhage below the optic nerve. A bicuspid tooth had been removed on account of an apical abscess. The hemorrhages had been rapidly absorbed. Discussed by W. C. Finnoff.

F. L. Beck for G. L. Strader, Cheyenne, Wyo., presented a man, aged thirty-eight years, who had received a splinter of steel in the right eye. The lens was opaque and the pupillary margin of the iris had the appearance of having been nicked by the foreign body in passing. After an attempt to remove the foreign body with a giant magnet through the pupil, it was necessary to remove the splinter through a scleral incision. The eye had remained persistently irritated. Discussed by C. E. Walker.

W. F. Matson, Denver, presented a man, aged twenty-one years, who from about the middle of November, 1921, had noticed progressively hazy vision, until on December 5 both eyes had become blind. Examinations of various kinds were negative. Discussed by F. R. Spencer, W. C. Finnoff and W. A. Sedwick.

W. A. Sedwick, Denver, presented a young woman whose right eye contained a persistent hyaloid artery which projected some distance from the optic disc.

F. R. Spencer and C. L. LaRue, Boulder, presented a woman, aged sixty-eight years, whose left eye had become completely blind and the vision of whose right eye was considerably reduced, the condition in each eye being glaucoma simplex. Operation was contemplated. Discussed by W. C. Bane, C. E. Walker and W. H. Crisp.

E. E. McKeown, Denver, presented a man, aged about twenty-eight years, who was probably suffering from brain tumor. He had been having headaches, recently practically continuous, and which quite frequently awoke him during the night. The vision of the right eye was reduced to counting fingers at four feet, and that of the left eye to 16/50, and in each eye there was a pronounced choked disc. Discussed by W. C. Bane, W. C. Finnoff, W. A. Sedwick and F. R. Spencer.

C. O. Eigler, Denver, presented a man one of whose eyes had been penetrated by a charred stick. There had been no distinct inflammation of the eye, but the eyeball was shrinking, and removal of the eye was probably necessary. Discussed by W. C. Bane.

WM. H. CRISP, Secretary.

FREMONT COUNTY.

The regular meeting of the **Fremont County Medical Society** was held in the office of Dr. V. A. Hutton in Florence, Colo., January 23rd, 1922, with the following members in attendance: R. C. Adkinson, V. A. Hutton, L. E. Rupert, G. D. Cummings, R. E. Holmes, C. H. Graves, H. C. Graves,

E. C. Webb, Otis Orendorff and Stanley Roberts as a guest.

The following clinical cases were reported and discussed:

Persistent hemorrhage of the stomach followed by death, Drs. Hutton and Rupert.

Unusual ankylosis of the second and third molars, Dr. Roberts.

Retention of urine in a thirteen-year-old girl following manipulations by a chiropractor, Dr. Hutton.

An unusual case of neurosis with no diagnosis; manifested coldness and pallor of the fingers, Dr. Webb.

Severe chorea, Dr. Holmes.

Dr. Holmes also reported marked improvement under adrenalin of a case of Addison's disease formerly exhibited at the penitentiary.

Fraeture of odontoid process with convalescence and prognosis of recovery, Dr. Adkinson.

The application of Dr. Andrew J. Baker for membership in the society was received and referred to a special committee consisting of Drs. Moore, Hutton and Rupert.

The following amendment to the by-laws having been filed for one month was read and unanimously adopted:

Amendment to Section 6 of the Constitution and By-Laws of The Fremont County Medical Society.

Section 6 is amended to read as follows: Every reputable and legally registered physician or dentist residing in Fremont County, who is practicing or will agree to practice, non-sectarian medicine or dentistry, shall be entitled to membership. All members of the dental profession to be associate members, having no voting privileges, and the annual dues of such associate members shall be \$2.00 per year.

The following officers were elected for the ensuing year: President, C. H. Wilkinson; vice president, F. R. Moore; secretary, Otis Orendorff; delegate, V. A. Hutton; first alternate delegate, C. H. Graves; second alternate delegate, L. E. Rupert.

The report of the secretary-treasurer was read and referred to an auditing committee consisting of R. E. Holmes and E. C. Webb and after being approved by this committee was accepted by the Society.

The Society then adjourned to the Idlewild Café for an oyster supper.

OTIS ORENDORFF, Secretary.

NORTHEAST COLORADO.

The Northeast Colorado Medical Society held its annual meeting for election of officers January 12, 1922, and elected the following: J. E. Naugle, Sterling, president; J. W. McKinzie, Haxtun, vice-president; J. H. Bush, Sterling, reelected secretary-treasurer; E. P. Hummel, Sterling, delegate. Drs. E. P. Hummel, M. R. Fox and J. H. Daniel, censors. J. H. Bush, reporter.

After the business meeting with a large attendance for so scattered a membership a banquet dinner was served by the ladies of the Presbyterian church at which Dr. W. W. Grant of Denver was the principal speaker. His address was principally on the History of Medicine and was well delivered and well received.

This annual banquet has become quite a feature here, an event in the yearly activities of our society, and is looked forward to with considerable interest. The dentists and druggists and ladies are invited and last night forty-eight sat down to dinner. Dr. Mooney of Colorado Springs was a visitor, two new members were taken in and two applications for membership received. This society has had the best year, just closed, in its history. Membership has so increased that we are now entitled to two delegates to the State Society.

J. H. BUSH, Secretary.

COLORADO NEUROLOGICAL.

The regular meeting of the Colorado Neurological Society was held at the Caetus Club Saturday, January 21, 1922, Dr. George A. Moleen presiding.

Dr. Moleen exhibited a case of gumma of the

brain. The patient presented right quadrantic anopsia, and this symptom was extensively discussed with reference to localization of the tumor.

The patient had had constant headache for five years. A Wassermann test was returned positive three years ago and anti-luetic treatment was instituted. Patient complained of mental confusion and a feeling of insecurity.

In addition to the anopsia there was swelling of both optic nerves. There was pronounced nystagmus. Pupils reacted normally to light and convergence. The right knee jerk was slightly more active than the left. The right Achilles reflex was diminished.

Blood serum Wassermann negative. Spinal fluid Wassermann positive. Colloidal gold curve luetic in type. Cell count 160.

Dr. Samuel Goldhammer presented a paper on suicide and analyzed statistics obtained at the Denver City and County Hospital from 1916 to 1922.

There were 497 suicides (including attempts); 60.6 per cent in females, 39.4 in males.

The average age of the females was 29.3 years, of the males 39.1 years.

Two hundred fifty-eight suicides occurred in homes and one hundred ninety-six in rooming houses and hotels. The balance occurred in jails, on the streets, etc.

Shooting was the most popular form of suicide and comprised eighty-six cases.

C. S. BLUEMEL, Secretary.

Book Reviews

Surgical Anatomy. By William Francis Campbell, M.D., Surgeon-in-Chief at Trinity Hospital, Brooklyn, N. Y.; Sometime Professor of Anatomy and Professor of Surgery, Island College Hospital. Third edition, revised. 681 pages with 325 original illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$6 net.

This is a very attractive work on surgical anatomy with illustrations appearing on the page which contains the text, a thing that is very pleasing to the reader. The text is complete in itself. The purpose of the book seems to be to present the anatomic facts in terms of clinical values and thus properly appraise those structures and regions which have a practical interest to the surgeon. The surgeon's interest in anatomy is vitalized only as the anatomic facts are correlated with those practical problems with which he is confronted as a practitioner of medicine. The author clothes the dry anatomic facts with living interest. As it is quite impossible to assimilate all details of anatomy, the author sifts the facts and fixes their comparative values so that it is easy to associate them with the practical problems.

The entire work is well written and handled so that it is well adapted to both teaching and reference.

L. H. W.

The Spleen and Some of Its Diseases. By Sir Berkeley Moynihan, of Leeds, England. 129 pages with 13 full page diagrams. Philadelphia and London. W. B. Saunders Company, 1921. Cloth, \$5.00 net.

This important monograph contains, in concise form, the present knowledge concerning the diseases of the spleen and their treatment. The functions and the pathology of the spleen, and the spleen-liver relation, are adequately discussed. Those conditions in which the spleen is mainly or partly affected, as leukemia, Banti's disease, hemolytic jaundice, etc., are given separate chapters.

Any contribution by Moynihan is worthy of study, and not the least value of this book is that it brings together in one small volume the results of the experimental and clinical work of the past few years; and it encourages to further study and research. It is of value alike to the internist and to the surgeon. The diagrams are most helpful in interpreting the text.

W. H. H.

Colorado Medicine

OWNED AND PUBLISHED BY COLORADO STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE.

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WM. H. CRISP, M. D., Denver.

PHILIP HILLKOWITZ, M.D., Denver.

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Editorial Comment

TO THE PUBLIC ABOUT "VIVISECTION" AND ANIMAL EXPERIMENTATION.

You are probably going to be required to vote at the fall election in Colorado to decide whether animal experimentation shall be continued in this state. The appeal in favor of preventing it is going to be made on a ground of sentimentality and your emotions will probably be stirred by stories you will hear of cruelties practiced by heartless young medical students and professors of surgery whose cold science disregards all suffering.

Judging from the name, an antivivisectionist should be one who is opposed to cutting up live animals, but we find that his interest has expanded in an attempt to prevent all kinds of experiments upon animals which may be practiced by the scientists of today in their efforts to find relief for human and animal ailments.

We suspect that this movement, which is ostensibly one of sentimentality, has more back of it than mere sentiment and is mostly concerned in a fight against the medical profession by several sorts of faddists, cults and organizations, the motives of some of which are plainly mercenary or vindictive. Be that as it may, we will consider the question on its merits, disregarding occult purposes back of the proposed legislation.

Now vivisection is one of the less frequently performed experiments, and when it is done it is for the purpose of developing surgical operations or in the study of physiology, which sentimentally and economically considered means saving many human, thinking beings from untold suffering and death by sacrificing a few small animals. You may know that all surgery nowadays is done under an anesthetic and, as this is not simply to relieve the pain, but also to keep the patient still, you will see that animal vivisection likewise can be done better with an anesthetic than without one. You will also appreciate that if the operation is to be a success the animal should receive the same protection against infection and the same relief from shock and subsequent pain that a human patient receives. It is true that such animal surgery as is now done in an experimental way, is carried on with an anesthetic and the other provisions for the minimum of discomfort, and you should disabuse your mind of the impres-

sions created by sob stories about the stealing and selling of pet animals which are afterwards made to writhe in pain on the experimental table and are pictured as being disjointed, disemboweled and generally tortured. People who will read these stories with a sane viewpoint will easily see the exaggerations contained in them, and if there are exceptional cases of cruelty practiced, will regard them in their true character—as exceptions. The fact is that there are about as many tender hearted doctors in the profession as there are tender hearted people proportionately in any other walk of life.

The whole subject really resolves itself into the question whether experimenting on animals, under the best provision for their comfort, for the purpose of preventing and curing diseases in human beings and livestock is justifiable. If you believe it is not justifiable, that would mean that if you had a tuberculous kidney which could only be diagnosed by injecting the excretion from that kidney into a guinea pig, you would prefer to die from the tuberculous kidney, which you surely would do, rather than to sacrifice the pig, discover your trouble, have the kidney removed and get well. It would mean that if you had diphtheria you would rather die than to use diphtheria antitoxin, because this antitoxin comes from a horse that has been inoculated with diphtheria by an "animal research" scientist. It would mean that if you needed any kind of urgent operation due to such cause as a ruptured appendix you could not consistently accept surgical relief because such surgery was made possible only through animal experimentation. It would mean that you could not consistently accept many other forms of treatment that are curative for the same reasons. It would mean, if you are a meat eater, that you would kill a chicken to satisfy your stomach for one meal, but would not kill a guinea pig to save a child's life.

Do you realize that when you go into a drug store to buy aspirin tablets you are supporting animal experimentation? Do you realize that nearly all drugs are tried out on animals first to determine their effects before the heartless wretch of a doctor dares to introduce them for administration to humans? Do you know that the existence of the Panama Canal was made possible only through animal experimentation which enabled scientists to discover the causes and prevention of malaria, yellow fever and typhoid fever, and that these three pests were

the sole cause of failure in previous attempts at construction of the canal?

If animal experimentation were stopped all over the world no further progress in the betterment of human physical existence would be made. If it is prevented in Colorado our state can not take its share in the great work being done in other parts of the world, and the national fame which has been gained by some of the research workers in our universities like the State Agricultural College, in the National Jewish Hospital for Consumptives and in the research laboratories in Colorado Springs and Pueblo as well as Denver, will be rendered null. We as a state would have to drop out of the work and leave it to other states which are not hampered as yet by the legislation of bodies made up of pure sentimentalists and impure organizations with selfish ends to gain.

For some unaccountable reason there are people who will not accept the idea of saving human life at the expense of small animal life, yet will readily admit the great practical saving to the livestock industry which is brought about by preventing a long list of animal diseases which formerly depleted the stock. If you happen to be one who believes that livestock can be improved by breeding, hygienic care, prevention of epidemics and treatment of disease, whether or not you consider children and babies worth saving, you should know that all stockmen now use hog cholera serum and many other serums and vaccines because from a practical point of view they have found them effective and feel that the small number of animals used to develop these cures are of infinitesimal value as compared with the economic saving which the methods effect. These treatments were found by experimenting on individual animals for the benefit of the greater number.

The main arguments in favor of animal experimentation may be summed up as follows:

All modern treatment of disease depends upon animal experimentation.

All modern surgery depends upon animal experimentation.

All modern sanitation depends upon animal experimentation.

The livestock industry of today is increased by many millions of dollars annually by animal experimentation, and without it would suffer tremendous loss and be gravely threatened as to its future existence.

THAT LIFE YOU SAVED.

Every physician can tell of cases where human lives were saved through the use of laboratory animals, or through the use of vaccines or sera that required the use of animals in their preparation.

Write up your cases, simply and graphically, so that the stories may be used in combating the antivivisection propaganda. Put the stories in simple words that any one can easily understand. Give the human side rather than the scientific aspect, and include the circumstances and details that a narrative needs.

These stories will be published by the Colorado Association for Protection of Public Health. The names of physicians will not be quoted, though they should be furnished to the Association. Send your stories to the Editor of Colorado Medicine. Send one today. C. S. B.

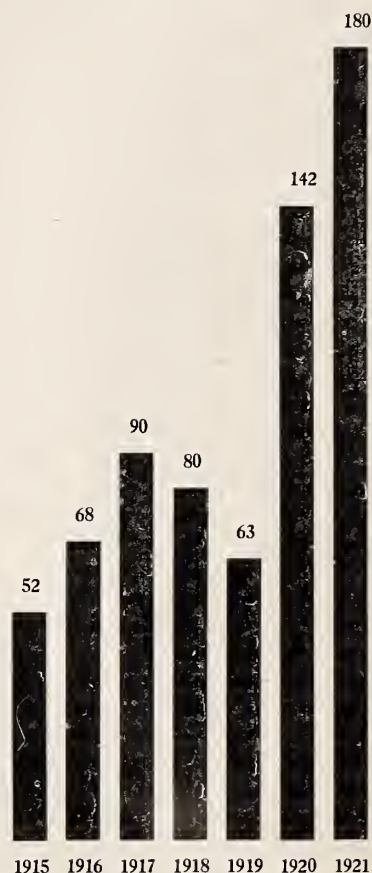
STATE BOARD OF HEALTH NOTES.

Diphtheria—A Preventable and Curable Disease.

The accompanying graph would hardly let one believe that diphtheria is a curable and preventable disease.

There were two thousand six hundred nineteen (2,619) cases of diphtheria reported to the State Board of Health in 1921, with one hundred eighty (180) deaths, which is more cases per capita than in any other state in the Union except New Mexico, and makes a five percent higher death rate than that of the United States.

Deaths From Diphtheria.



I thought this possibly was due to the fact that doctors were neglecting to take swabs, but I find that we have used more culture tubes per month during the past eight months than we have in any previous year. I then thought that the possibility of the delay in the cultures reaching the laboratories might be cause for a higher rate of incidence and also a higher death rate, but upon checking over the cases I find Denver, Colorado Springs, Pueblo and Trinidad, which by reason of their having laboratories at hand are well able to get reports in a very short time, have half the deaths charged to them and

approximately half the number of cases. In 1920 these four cities showed seventy-one (71) deaths and the state, exclusive of these cities, showed seventy-one (71) deaths.

The state boards of health of a number of states have gone on record as strongly advocating the use of the Schick test and toxin-antitoxin, and in some parts of New York the use of the Schick test is compulsory.

The State Board of Health has been backward in advocating this test, and I believe the doctors in the state in general have not taken up the Schick test as they should for the best interests of the people at large.

Upon inquiring at the different pharmaceutical laboratories and supply depots, I find that they do not sell any Schick test in Colorado to speak of. I was unable to find many men in the city who were acquainted with the Schick test or who used it to any great extent.

R. L. D.

Editor's Note.—The State Board of Health of New York has become convinced of the absolute harmlessness of the Schick test and the toxin-antitoxin immunization procedure. These have been extensively utilized during the past eight years in New York City, and the results of immunization have been permanent for that length of time. Out of over one hundred thousand children in that city on whom the Schick test was performed not one is known to have become ill as a result of it. Previously to this eight-year period the death rate from diphtheria in New York City was from two to three times as great yearly as it was in the remainder of the state. As a result of the procedures applied in the eight-year period the death rate has fallen 1.3 points below that of the rest of the state, where these procedures were not generally used. It would appear that the Schick test is harmless and that when it shows non-immunity of the child should be followed by immunization with toxin-antitoxin. Just why these procedures are not advocated or insisted upon by all state boards of health is not plain to the editor. Discussion of the subject in these columns, either advocating the measures or voicing legitimate objections, will be welcome.

DR. HUGH CABOT DISCUSSES "STATE MEDICINE".

Excerpt from the address of the Dean at the opening of the medical school (University of Michigan) on September 27, 1921:

"The expense of the practice of medicine to the physician has enormously increased and has in more or less direct ratio increased the expense to the patient. This has given rise to much discussion. That the public has a real case in its desire to obtain medical care at a reasonable price is true. But it is even more true that the medical profession is entitled to great consideration and should properly be regarded as the best witness concerning the difficulties surrounding any new adjustment. It is not necessary here to go into the suggested remedies which have included various forms of compulsory

health insurance and various remedies classified under the very vague phrase of 'state medicine'. I desire only to point out that it is my opinion that the State Medical School should be prepared to bear its part in this discussion and I desire to take this opportunity of making clear the position which this school will take in the present discussion. Any proposition for the amelioration of real ills in the present adjustment which leaves out of account or fails to give great importance to the maintenance of the present relationship between the physician and the patient is in my judgment doomed to failure in this democracy. It is the essence of the American spirit that it desires freedom of choice and though such choice may not always be wisely made, any attempt to curtail such choice will meet irresistible opposition and will fail. Furthermore it appears to me clear that no proposition looking to change can be successful which will result in the deterioration of the standing of the medical profession in the community. The standing of the physician in the community has always been a high one and he has been looked to as an almost public official whose concerns were less personal and more public than those of most of his brethren. Now, any proposition to change present conditions which will importantly alter this relation, which will make the medical profession one of lesser dignity and lesser importance, though it might temporarily appear to remedy the ills, would in the end defeat its own purpose and have a disastrous effect upon the public health. Unless the medical profession be encouraged to continue in the future as in the past and unless the individual physician continues to regard himself as having duties to others far greater than to himself, advancement in medicine will be less rapid, our ability to deal with disease will improve less certainly and we may well see our civilization fall because of the failure to cope with the diseases with which it is constantly menaced. I think I may safely say that this faculty will be found upon the side of the medical profession, that it will always sympathize with the demands of the public for improved medical service but that it will cast the weight of its influence in favor of those changes which maintain the dignity of the profession and oppose those which reduce the profession to hirelings of the state, of the community or of the corporation * * *".

THE AMERICAN MEDICAL ASSOCIATION MEETING AT ST. LOUIS, MAY 22 TO 26.

Special Railroad Rates.

If the reservations made at the leading hotels in St. Louis may be taken as an indication, the meeting promises to be one of unusually large attendance—the two largest hotels having announced booking to their capacity in January.

It is interesting to note that, although slight, a noteworthy concession has been made in railroad rates, which will apply from Denver to St. Louis.

Delegates may obtain identification certifi-

cates from the secretary of the American Medical Association upon application. When these are presented at the local railroad office, tickets may be obtained from Denver to St. Louis and return at the round trip fare of \$49.20. The return limit will be approximately May 28. The tickets will require to be validated by the validating agent before they will be honored for return passage. This plan is much to be preferred over the ordinary certificate plan.

The Pullman rate for lower berth from Denver to St. Louis is \$10.13; for upper, \$8.10; and drawing room, \$36. These rates will apply over various lines. If a sufficient number of delegates arrange to travel over any one line—namely, eighteen or twenty—a special Pullman may be reserved.

Through trains from Denver are operated by the Union Pacific, the Chicago, Burlington & Quincy and the D. & R. G.-Missouri Pacific railroads—the Union Pacific leaving Denver at 12:50 noon and arriving at St. Louis at 6:15 p. m. the following evening; a second train leaving at 9:00 p. m., and arriving at 7:00 a. m. the second morning. The Burlington leaves Denver at 1:15 p. m. and arrives in St. Louis at 6:50 p. m. the following evening, and a similar night train leaves at 8:40 p. m., and arrives in St. Louis at 7:19 a. m. the second morning. The D. & R. G. leaves Denver at 12:40 p. m. with through Pullman, via Pueblo, to St. Louis, arriving at 8:30 the next evening. Chicago, Rock Island & Pacific leaves at 12:30 noon and arrives at St. Louis at 8:00 p. m. the following evening, requiring a change at Kansas City; similarly, an evening train leaves at 9:30 p. m. and arrives at 7:40 a. m. the second morning, also necessitating a change at Kansas City.

If a sufficient number of reservations are secured to warrant the special Pullman, this car can be designated a special Colorado sleeper. Reservations or inquiries in this regard should be made to the city passenger agent of the line selected or preferred.

A NEW "LIBRARY" DEPARTMENT.

In this issue of *Colorado Medicine* is instituted a new department under the heading, "Notes From the Library". As should be generally known by the members, the State Society library is in the custody of the Denver County Society's library and the two combined will compare favorably with the largest and most comprehensive medical libraries owned by any organization of physicians. Many books and other publications are furnished by the publishers to *Colorado Medicine* for review and these become the property of the State Society. The new department, to be conducted by Dr. Henry Sewall, will absorb the department of Book Reviews, previously run, and in addition will include special mention or abstracts of timely and meritorious articles on subjects of general or special interest in the current journals, and furnish other library news of one kind or another. Incidentally, members outside of Denver should take advantage of their privilege to use this

library. When literature on a given subject is wanted, address the Librarian, Medical Library, 1610 Court Place, Denver, Colorado, with a request for your needs; the references will be found and literature sent to you subject to return within a definite time.

ANNUAL REPORTS FROM CONSTITUENT SOCIETIES DUE.

Secretaries of constituent societies are reminded that the annual report and remittance of dues to the State Society should be made without further delay in order that they may be in the secretary's hands by April 5, after which date all societies not reported will be held as suspended, in accordance with Chapter XIX, Section 3 of the by-laws.

Original Articles

MULTIPLE DIVERSE TUMORS AFFECTING THE SPINAL CORD.*

PHILIP WORK, M. D.,

Assistant Superintendent, Woodcroft Hospital,
Pueblo.

The literature of neuropathology is replete with cases of spinal cord tumors of many types, medullary, sub- and epidural. Not rarely are there reported instances of new growths of multiple distribution, but search fails to disclose a reported case of multiple tumors not of identical histology.

Oppenheim states not one cord tumor in fifteen, not arising from the vertebrae, originates epidurally and those which do are usually lipomata or carcinomata. Within the dura he cites especially fibromata and in less frequency sarcomata and endotheliomata, then psammomata, tubercle syphilomata and certain rarer forms of mixed growths. Gliomata he mentions specially for their usual multiple characteristics.

Our knowledge of spinal cord tumors has been immensely furthered by the recent advances in the physiology of fiber tract pathways and of the localization of function in the cord. Despite these advances, however, and the experience gained in a rapidly increasing number of operations, after having excluded all such causes of cord disorder as syphilis, transverse myelitis, vertebral caries and injuries, we still find ourselves not infrequently at a loss to differentiate medullary neoplasms from syringomyelia, or chronic internal pachymeningitis from a subdural tumor.

If we are to give the patient relief, nothing is of more urgent interest than accurate localization of the lesion, since no less an authority than Elsberg advocates laminectomy in cases of syringomyelia, localized meningitis and even syphilomata, if treatment has been of no avail, and level phenomena be present. The immedi-

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ate or surgical risk of laminectomy in competent hands is less than ten percent and excluding acute softening and recent injuries, less than five percent.

Laminectomy having been performed, a decision must be arrived at, often not possible before operation, as to the subsequent procedure, whether sufficient relief will be gained by the simple release of pressure already had by removal of the vertebral arches, or whether it would be better to proceed with the removal of the tumor, and that by one or two stage operation. The merits of these different procedures must be evaluated in terms of the patient's condition, the probable time of further operation, and the skill of the operator, placing meticulous gentleness far ahead of a desire for speed.

The localization of spinal new growths is determined by three factors, interference with tract conduction, destruction of spinal reflex arcs, and nerve root disturbances. Accurate localization presupposes in the examiner an absolute knowledge of the distribution of the various fibers of the spinal roots, not only in their superficial or muscular endings, but also in their courses and decussations in the spinal tracts.

Elsberg, in a recent article, warns against what he calls "false localizing signs" where even though the symptoms point to a definite localization, the lesion is elsewhere. He explains this in three ways, first, absence of root symptoms; second, in intramedullary tumors the exact boundaries of the lesion may be uncertain in that if conduction is merely impaired and not cut off, the area of disturbed sensation merges insensibly into sound areas; third, assuming a gradual decussation of fibers for pain and temperature and very possibly also for touch, only a small proportion of these fibers may be impaired, and they only the ones possibly supplying areas far below the site of the lesion, as in two of his cases and the one here reported.

A not inconsiderable proportion of these cases, however, do not offer in their early stages sufficient localizing phenomena to justify operation at a time which would give the most satisfactory results. This is especially true of intramedullary growths which are for a longer time less painful and do not exhibit the sharp demarcation phenomena of intradural or epidural tumors among whose earliest phenomena are nerve root pains. As in other neurologic conditions, it is very frequently observed that symptoms previously unknown or existing mildly are brought suddenly to the fore by accident or disease. Why these conditions should activate the new growth is not clear. In the case to be here reported the symptoms first followed pneumonia and were twice suddenly increased by accidents.

If operation be contemplated it must not be forgotten that the spinal segments and the vertebral segments having corresponding numbers are more or less widely separated. Localization to one cord segment is impossible except in rare instances because of the existence of a joint innervation of the same areas by the two or three adjacent spinal roots. A minute lesion, involving only one of the upper spinal roots practically

defies detection. In this connection as diagnostic aids we may mention the roentgenogram unaided, which is of no value unless there be concomitant disease of the vertebra, and the so-called "spinogram" of Frazier in which after withdrawal of fluid an equivalent amount of air is injected into the spinal canal, either above or below the suspected tumor, or both, and a picture taken. If the canal be occluded the air should not pass and will show its location in the roentgenogram. This air is absorbed in a short time without danger or discomfort. The belief that xanthochromic or yellowish discoloration of the spinal fluid is practically pathognomonic of tumor is in my experience unjustified. In an observation of probably six hundred spinal fluids over a period of five years I have seen the condition four times and in two of them there was no suspicion or evidence of spinal canal occlusion. Two proven cord tumor cases showed it, two did not, the present case being one of the latter. A much more valuable indication is excessive globulin without Wassermann findings.

The following case presents several points of interest. It demonstrates the examination findings of an extramedullary tumor, with unusually long duration of non-incapacitating symptoms with some operative relief, and the most unusual condition of two lesions, one epidural, the other subdural and of different pathology, the record of which was not suspected at the time of the first operation and which was not influenced by surgery. It further shows that in cord obstruction cases the localizing phenomena are those proper to the fiber highest point of interference with conduction.

This patient was operated by Dr. L. H. McKinnie at Colorado Springs in December, 1920, and it is through his courtesy that I am privileged to report a condition not found by me in a survey of the literature.

Case: Mrs. P. is a white married woman of sixty years who has been an institution seamstress till seven months before operation. Her family history is negative. Her early life was uneventful. Thirty years ago she was in a runaway accident, but lost little or no time from work. A few months afterwards she had an attack of spinal meningitis from which she is said to have recovered perfectly. The first indication of the present trouble arose twenty years ago following a severe attack of pneumonia when she noted that her left side was numb and "felt frozen". The body numbness gradually subsided but a peculiar feeling in her left leg persisted and very gradually centered in the left great toe, but for many years got no worse and did not seriously discommode her, until there set in ten years ago a "snapping pain" in the left great toe, and she had the toe nail removed, without relief; several times later the toe was operated on for suspected local pathology. Shortly after the first operation she noticed that when she walked it "felt like walking on gravel" and shortly afterwards she complained of formication in the foot and lower calf.

Her gait gradually became more unsteady,

necessitating the use of a cane and in May, 1920, she fell, fractured three ribs and was in bed three weeks. Immediately following this, there was more pain and there set in an irregular muscular twitching of the leg below the knee. This increased steadily and was usually worse at night or when the leg was straight.

Pain and the increased difficulty of locomotion soon confined her to bed and in November, 1920, contractures of the leg began. Flexion of the leg gave but slight relief from pain. At no time did she have herpes zoster. At this stage she entered the hospital, still able to walk with a crutch but with difficulty.

Examination showed a well nourished woman of clear mentality with no discomfort except more or less sharp pains in the left leg. No organic troubles were detected except a slightly enlarged liver. X-ray examination of the spine was negative. Blood count and urinalysis were normal. Blood and spinal fluid Wassermanns were negative. The spinal fluid showed increased globulin, twelve cells, no xanthochromia.

Neurologic examination demonstrated that the cranial nerves were normal; station and gait could not be obtained. All findings in the upper extremities were normal. The right umbilical reflexes were present though diminished, the left were absent. Spincter control was normal. The right leg was freely moved with good control and showed nothing of diagnostic interest except a slight increase of the knee jerk. The left leg was weak and spastic, very slight involuntary motion was possible at the hip joint, none at the knee or ankle. The left leg was very slightly cyanotic, not edematous, and felt distinctly cooler to the touch. There were no evidences of old trophic disturbances. There was a very slight degree of general atrophy. The left knee jerk was exaggerated and delayed. There was an inexhaustible ankle clonus, set off by the slightest manipulation. There was a definite Babinski. Sense of position and vibratory sense were destroyed, and the patient was unable to identify the toe touched.

Sensory Status: On the entire right side no changes. On the left side from the tip of the xiphoid, to the midline two inches below the angles of the scapulae is a band one and one-half inches wide, of increased reaction to all forms of stimulation. Below this band there is on the left side no reaction to pin prick or cotton wool with the exception of an area three by six inches in the popliteal space which reacts to pin prick but not to cotton wool. Throughout the leg very deep pin prick is occasionally interpreted as touch. Thermic sense is entirely absent, neither heat nor cold is recognized.

Small extra-medullary tumor at the sixth or seventh thoracic spinal segment was diagnosed and operation was advised and accepted and the lesion located tentatively on the left side.

At operation on December 31, 1920, the fifth, sixth and seventh vertebral arches were removed by rongeur. On opening into the spinal canal there was seen on the left dorso-lateral aspect of the cord at the level of the sixth thoracic segment a brownish irregularly crab shaped growth

roughly one cm. in diameter, attached loosely by its prolongations to the dura. These extended ventrally and ramified to some extent between the sixth and seventh posterior or sensory roots. It was readily removed without trauma or bleeding. Exploration in both directions by probe, epidurally, failed to show anything that could be construed as suspicious. The wound was closed and the patient made an uneventful convalescence.

The diagnosis of extramedullary tumor rather than one in the substance of the cord was based on the absence of opposite side phenomena as would be the case if decussating fibers were seriously involved, the early and constant root pains and the absence of trophic disturbances. Syringomyelia was excluded on similar grounds. It was located on the basis of the place of the zone of hyperesthesia which corresponds to the area of inflammation surrounding a wound and aided by the destruction of the left umbilical reflex arc located in the seventh and eighth thoracic segments. After operation the patient rapidly showed regression downward of the hyperesthetic zone, diminution of pain and some relief of spasticity. This ceased, however, at the level of the eighth thoracic cord segment and there was not only no further improvement but there was the onset on the right side of symptoms practically similar to those previously found on the left.

This condition continuing, she was again operated by Dr. McKinnie in June, 1921. - At this operation the vertebral arches of the eighth and ninth thoracic vertebrae were removed.

At the level of the eighth cord segment there was seen even before the dura was opened a fusiform swelling one inch long located on the left of the cord. The dura was incised with the escape of a small amount of fluid and there was found a firm broad band of adhesion running leftward from the posterior ligament and attaching to the dura at the points of emergence of the eighth and ninth sensory roots. This band was laminated and had within it a considerable quantity of gelatinous yellow substance which was lost in the removal of the growth. Removal was easily accomplished without undue hemorrhage and the lateral aspect of the cord was found only slightly compressed.

The wound was closed and the patient made a fairly good surgical recovery but at this time, more than three months after operation, has not recovered any further function.

This condition is especially interesting in view of the old meningitis thirty years before; probably an organized residual adhesion which had undergone degenerative changes.

The pathological report by Dr. Ophuls of San Francisco on the two growths was as follows: The growth first removed (epidural) was described as a mass of irregularly placed yellow connective tissue, apparently originating from an intervertebral disc, a fibroma.

The subdural specimen last removed was a cyst wall firm and dense in consistency showing calcification and was classed as an osteoma.

DISCUSSION.

G. A. Moleen, Denver: When one finds a tumor of the spinal cord, and takes the pains to present it, it ought not to go without a few words, at least, of commendation. A great many tumors of the spinal cord are buried without research and without knowledge, and for this reason I rise to commend the report and study of this case on the part of Dr. Work. Tumors of the spinal cord present as their chief symptom, pain, by which our attention is first attracted to this region. The other localizing symptoms, whether they be extradural, intradural or medullary, are fairly easy of appreciation, the site of interception being the main point to elucidate. I would only add one point with reference to the pain that it is emphasized by sudden respiratory movements, especially sneezing and coughing. Another point with reference to the operative technique for intramedullary tumors. These are not, fortunately, as common as the others, but I think that the procedure used by Elsberg is to be followed almost universally, which includes a vertical incision parallel to the longitudinal fibers, to allow for what he has termed "extrusion". Another point is that in the beginning medullary tumors are frequently wanting in symptoms, except such uncertain and migratory pains as have been mentioned in this case. This is to be explained on the basis that fibers encircle the growth until there is pressure enough for the production of pressure pathology in the tracts themselves; until this occurs they function as they would normally, with the exception that in the case of increased pressure within the canal, as in the case of sneezing or coughing, these symptoms are emphasized.

L. H. McKinnie, Colorado Springs: I am very glad to have heard Dr. Work's paper, and I want to commend him on it, as well as his comment upon my case which has been done very much better than I could have done myself. I just want to emphasize this one point, that I am not a neurologist, and Dr. Work and Dr. Moleen are neurologists, and when we listen to their terminology we are very apt to be scared away from spinal cord conditions. There are a few simple things that have been of great assistance to me in the simplifying of cord work. We need to remember only a few of the major spinal cord tracts and their functions to get a pretty good working diagnosis. The cortico-spinal and the subcortico-spinal tracts are the two descending ones you need to remember. These are the motor tracts. You remember your physiology and anatomy well enough to know that the cortico-spinal tract is divided into two, one crossing immediately in the brain and going down the opposite side, while the other goes down directly. Any involvement along either of these tracts gives symptoms which are easily referred to the location, affecting motion only on the same side as the lesion. The other tracts for the general surgeon or medical man to remember are those which control the sensations, temperature, pain and also coordination. Roughly, the coordinating tracts are in the posterior part of the cord, and pain and temperature are carried in the spino-thalamic tracts which cross the cord almost immediately and ascend the opposite side. So pain and temperature will be affected on the side opposite the lesion.

Dr. Work (closing): There are many interesting features in this case which could not be gone into in the time at my command, and probably the most interesting is the contrasting of the long duration of the symptoms of the first tumor operated for with the symptom course of the second or unsuspected tumor, the principal symptoms of which developed to an alarming extent in three months. Whether that was largely a cyst or not is something that only can be proved at autopsy—I am not at all clear. But certainly those conditions which usually develop in a marked degree, did not exist originally, as has been confirmed by Dr. Stephens. Here you find your epidural and subdural, not only your slow growing, but your rapid

growth of symptoms, and what to any neurologist is most interesting is the transference from one side of the cord to the other side of the lesion.

MEDIAN BAR AT THE VESICAL ORIFICE.*

WM. M. SPITZER, M.D., F.A.C.S., DENVER.

Median Bar is the term used to connote the occurrence of tissue as a result of an inflammatory process at the internal sphincter of the bladder in the male; the result of this condition is obstruction to the outflow of urine from the bladder during micturition, and this obstruction results in either

(1) Hypertrophy of the bladder musculature at first, and then when such compensatory hypertrophy is no longer possible with the increasing obstruction, dilatation of the bladder; or

(2) A dilatation of the bladder from the outset.

And in either case this dilatation and inability of the musculature in the presence of an obstruction to the outflow insures sooner or later a bladder residual, trabeculation of the bladder, diverticula, dilatation of the ureters, a dilatation of the kidney pelves, and, if infection occur, pyelonephritis, oftentimes passing on to pyonephrosis, which is in these cases commonly double; and of course when these later stages are reached the patient is usually suffering from chronic uremia.

It will be noted that all of this pathology is identical with the pathology which occurs with obstruction to urination at the outlet of the urinary bladder, no matter what the cause may be, and so it is pertinent to remark at this time that this disease cannot be differentiated symptomatically from the enlargement of the prostate due to tumors, and known as senile hypertrophy of the prostate. As this condition of which we write occurs in men at or past middle life, as a very general rule; as its treatment is and should be entirely different from that of enlargement of the prostate due to tumors; and finally as it is constantly being confused with and being treated for, and in the same manner as, this enlargement of the prostate, I need offer no further apology for the appearance of this paper at this time.

Before proceeding further it were well to clear up the confusion due to the nomenclature which has existed for many years. This condition has been at various time, and by various authors, differently called, although I am sure that all intended to indicate the same pathology: it has been known as "barrière du col de la vessie", "prostatisme sans prostate", "Prostatiker ohne Prostate", "atrophy of the prostate", "small fibroid prostate", "fibrosis of the internal sphincter", "stricture of the bladder neck", "atony of the senile bladder", "valvules du col de la vessie", and by other terms which it may have pleased the author who chanced to write on the subject to call it, depending on his

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knowledge of the writings of others and his viewpoint of the pathology.

The etiology of this condition is, concisely, either inflammation in the mucous membrane and the submucous connective tissue at the bladder neck and in the posterior urethra, or an inflammation of the prostate, or most probably, and most often, a combination of the above two. Therefore, those things which cause repeated attacks of posterior urethritis and prostatitis are the causes of median bar. I exclude only the rather rare median bar which is congenital, and which shows symptoms in infancy or early childhood; or, if the obstruction be not too great, such symptoms may be delayed in appearing until adolescence or early manhood.

The symptomatology (as above mentioned, exactly that of adenomatosis of the prostate) consists of

(1) frequency more marked when the patient lies down; (2) pain, before, during or after urination, especially the last; (3) urgency; (4) decrease of force; (5) decrease of size of stream; (6) dribbling, either from retention or impairment of musculature; (7) bleeding; (8) hesitancy; (9) intermission of stream. And finally all those symptoms of ill health due to chronic uremia, caused as above mentioned.

The pathology of these bars, as worked out in the last decade by Young and by Randall, briefly, is as follows:

To begin with, it is recognized that these bars may be congenital or acquired. When they are congenital they are thin bars consisting practically of a fold of mucous membrane at the bladder neck, or sometimes in the posterior urethra near the bladder neck, and in such cases, of course, are not inflammatory, but constitute an embryologic error. Zuckerkandel was in the habit of calling attention to their occurrence in infancy and early childhood. The best proof, however, of their occurrence is the fact that in Randall's three hundred autopsy cases over one percent of such bars occurred between the age of ten and twenty years, as a rule too early to have been the result of inflammatory conditions. The acquired bars are purely and simply cases of prostatitis and posterior urethritis, with the formation of fibrous tissue marked at the exit of the bladder, and all show various degrees and stages of inflammation when examined microscopically. Before going into detailed description of the microscopic pathology a classification of these bars will be considered.

These bars are classified by Randall from a pathologic-anatomic standpoint into fibrous and glandular bar. He again divides these two groups into two sub-groups, and from a pathologic-anatomic standpoint his classification is most excellent; but from a practical standpoint it would seem best to divide them into two types as follows:

Type 1—The broad thick bar, and

Type 2—the thin high bar.

Now as to the minute pathology. All these

bars show the result of inflammation in one way or another, as follows:

(a) An inflammatory process in the submucous glands of the posterior urethra, consisting of an actual increase of the epithelium lining of these glands as well as a round cell infiltration around them.

(b) The same process in the submucous

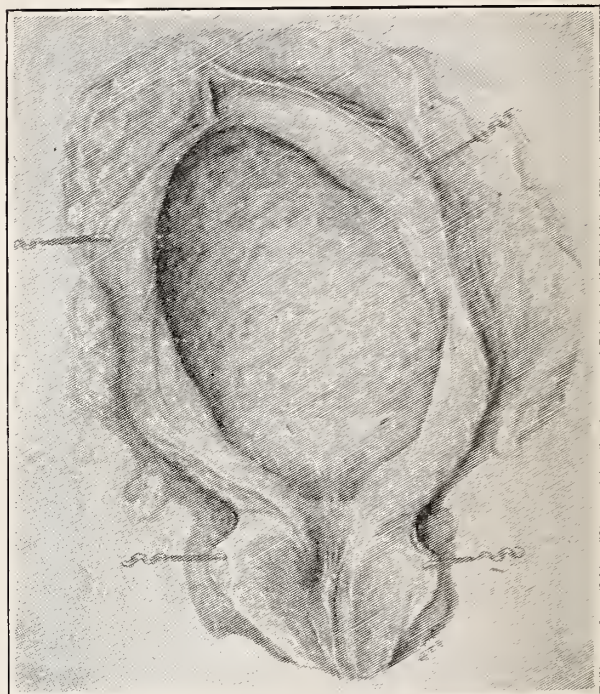


Fig. 1.

Taken from Randall, showing the normal bladder neck with practically flat floor from veru montanum to interureteral ridge as demonstrated by the uvula vesicae.



Fig. 2.

Taken from Randall. Median bar, fibrous tissue predominating, showing changes in bladder resulting from median bar.

glands of that portion of the trigon inside the bladder, but at the bladder neck.

(c) The same inflammatory process in the prostatic glands or acini near the floor of the urethra or floor of the bladder, but again at the bladder neck. This would truly be an adenomatosis of the prostate, and is frequently associated with general adenomatosis of the prostate, but if located at the bladder neck, and the bladder neck alone, would form a bar.

(d) The occurrence of fibrous tissue underneath the mucous membrane and on the floor of the bladder neck without any of the above

gland changes, but on the contrary, a more or less disappearance of all these submucous and prostatic glands, and this is merely a later stage of either (a), (b) or (c).

(e) Any combination of (a), (b), (c) and (d) or any of these.

All the above changes are purely inflammatory, as repeatedly emphasized above, and are the end results of an infection of some type or other, occurring at this spot just as a stricture of the anterior urethra is the end result of an infection occurring in some of the mucous glands of the anterior urethra. Being richer in glandular structure, the mucous membrane at the bladder neck is even more liable to this inflammatory process than is that of the anterior urethra, and the presence of the prostatic glands, together with the frequency of infection of such glands, makes possible with greater frequency, this median bar.

The Recognition or Diagnosis of This Condition.

The only sure differentiation between obstruction at the bladder neck, due to a median bar, and obstruction due to other causes is by means of the cystoscope and the urethroscope. In prostatic hypertrophy the cystoscope or urethroscope shows us rounded tumors projecting into the bladder, either impinging on the internal sphincter muscle so as to prevent its action, thus deforming the rounded opening, and presenting convexities where concavities are in order, or situated inside the bladder and so close to the bladder neck as to be pushed into the sphincteric orifice during the act of micturition. Or, if this hypertrophy be confined to that portion of the prostate through which the urethra runs, we will see similar encroachments of these tumors on the prostatic urethra, so compressing its lateral walls that the muscular action of the bladder, in an attempt to empty itself, is incapable of forcing fluid through this closed passage. On the other hand, in median bar formation, there is a total absence of such projections either into the urethra or the bladder and the following changes have taken place:

(1) A distinct bar or barrier on the posterior lip of the internal sphincter is to be seen and recognized.

(2) The practically flat floor from the inter-ureteral ridge to the veru montanum is so changed that an elevation exists at its mid-point, antero-posteriorly considered, and there is a rapid slope downward from this point to the inter-ureteral ridge and another rapid slope downward from this mid-point to the veru. One of these slopes, is, as a rule, more marked than the other.

(3) Either the distance between the internal sphincter and the inter-ureteral ridge, or the distance between the internal sphincter and the veru is markedly shortened. If the first space, namely, that between the internal sphincter and the inter-ureteral ridge is shortened, then we say that a bar has formed at the expense of the trigon, whereas, if the space between the sphincter and the veru has been shortened, we say

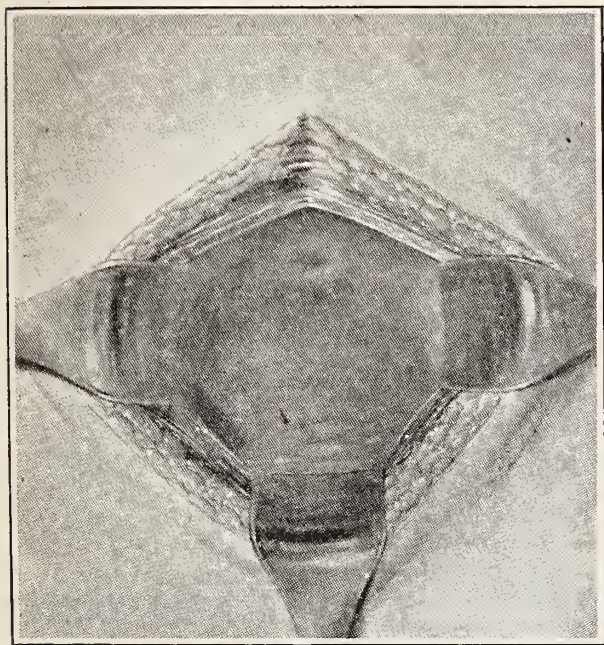


Fig. 3.

Taken from Young, bladder orifice viewed from above, orifice normal.

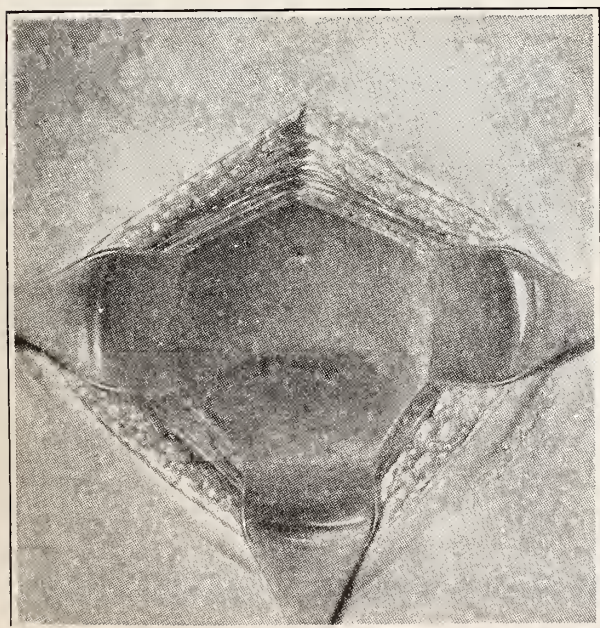


Fig. 4.

Taken from Young, bladder orifice viewed from above in case of contracture of vesical orifice, or median bar.

that the bar has formed at the expense of the urethra.

(4) The mucous membrane of the trigon as well as that of the posterior urethra is either well reddened and highly inflamed, or appears dense, dull and pale, dependent on the extent and degree of the inflammation and the extent of the fibrous change these tissues have undergone.

(5) The delicate uvulae vesicae are frequently completely wiped out.

(6) The cystoscopic appearance of this bar varies, dependent on whether the bar is a thin high bar, forming an acute angle, or whether it is a broad thick bar, making a very obtuse angle.

There are aids to this cystoscopic diagnosis as follows:

First—in median bar, to the finger in the rectum, there presents a prostate which is hard and smaller than the normal prostate, whereas in adenomatosis of the prostate, this latter organ feels enlarged and not universally hard.

Second—the normal urethral length being seven and one-half inches as measured by catheter, in median bar formation the urethral length is normal or frequently decreased, while in adenomatosis of the prostate the urethral length is always increased.

Third—Frequently the instrument which one attempts to introduce into the bladder will not pass the bladder neck, if a bar be present, or if it pass, such instrument will be felt to “jump” as it enters the bladder.

The Story of the Recognition of This Bar.

In 1830 Dr. Guthrie, an Englishman, first described this condition in detail and his writings on the subject may be found in his book on Urethral Stricture, published at that time. He gave it the name “Median Bar”. Earlier mention of obstruction at the bladder neck is by Home, after whom the submucous glands occurring in the bladder are named. Guthrie is to be given further credit for attempting to popularize the idea that obstruction at the bladder neck could be caused by such a bar. For both in his writings and his lectures to his students he dwelt on this subject in detail, and was so successful that the idea was taken up in France by Mercier, who in turn described it, and invented an instrument for its excision through the urethra, which instrument differed from that of Guthrie. Despite the work of Guthrie, Mercier, in his description of this condition, and in his invention of instruments seems to have given the former no credit.

This work of Mercier's, read at the Academy of Medicine in Paris in 1836, was followed by a description of this condition and the invention of a new instrument, again to be used through the urethra, by Civiale in 1839, who probably, up to his time, was responsible for the most accurate description, and the deepest study of the pathology of this condition.

It must be remembered that recognition of an enlarged prostate occurred in the eighteenth century and so by the time the median bar was recognized by these few surgeons in England

and on the continent, an attempt at a differential diagnosis had to be made. Mercier persisted in his writings on this subject for a number of years, but after his death, all interest seems to have been lost, and very little or nothing further appeared in the literature until 1890. To be sure, mention now and then, and a few words then and when, by such writers as Gouley, the elder Gross, and others interested in genito-urinary surgery, during the latter part of the nineteenth century, are to be found, but no consistent elaborations or detailed descriptions.

In 1874 Bottini reported some wonderful results in the cure of enlargement of the prostate in the old, by attacking the same with an instrument he devised, and which instrument was later improved upon by Freudenberg, and known as the Bottini-Freudenberg instrument. This instrument consisted of a platinum knife which could be made red hot by means of the electric current, and which was manipulated in the same fashion as was the lithotrite of that day. When closed the instrument had the shape of a sound, and having been introduced, it was opened by withdrawing the male blade or platinum knife from the female blade by means of a wheel, as one finds it on the lithotrite. This instrument was used in enlargement of the prostate and in median bar indiscriminately and the cures which occurred were, no doubt, cases of median bar. The failures were, no doubt, fairly well advanced cases of enlargement of the prostate due to tumor. Because the majority of cases were enlargement of the prostate, because the instrument was useful only in the hands of the expert urologist, and because even in his hands serious accidents occurred, such as severe hemorrhage or incontinence of urine, this instrument has been practically discarded.

The modern recognition of this condition is due entirely to the use of the present day cystoscope, and although the cystoscope was invented in 1883, its use for study of conditions about the bladder neck was not practical until about 1905.

Among the men to be given credit for attempts at dealing with this condition by modern methods is Chetwood. Having carefully differentiated it from hypertrophy of the bladder, he attacked it with an instrument on the order of the Bottini, but shorter and more definitely under his control, because he used it through a buttonhole incision in the perineum. Thus he had the immense advantage of being able to put his finger into the bladder through this incision before operation, and the further advantage of examining the urethra, the bladder neck, and the bladder, after his work was through. Much credit must be given to Young for his writings on this subject and his careful and persistent attempts throughout the last fifteen years to deal with this bar. His instrument, built on the order of Mercier's, is much handier and more efficacious. To him we are indebted for the first careful pathologic study of the tissues removed by a median bar excisor. Before this time the only pathologic studies to be found are those made by the German surgeons who excised portions of this prostate from above, and thus af-

fording themselves an opportunity of studying such specimens. Since 1910, the advent of the near vision cystoscope, and its cousin, the urethroscope, have made a study of the bladder neck in vivo possible, and the greater use of these instruments in the past decade has brought us not only to a far better understanding of this condition, but has disseminated such knowledge freely.

Coincidentally the immense increase of surgical work on the bladder neck, by the urologist, from above, combined with the knowledge acquired by visual examination through the urethra, brought about a realization and finally a differentiation of the different conditions at the bladder neck capable of producing the same symptomatology. All this means that the "small fibrous prostate" for which a prostatectomy was attempted, is today recognized as median bar by the initiated.

In 1915 a brilliant and extremely interesting study by Alexander Randall of Philadelphia appeared in the New York Medical Journal, going carefully into all the phases of this subject, excepting only a pathologic study of the tissue composing such bar, his only suggestion as to treatment being the use of the high frequency current for destruction of the bar. This article carries with it a complete bibliography for those who are interested. A later study by the same author entitled, "Median Bar as Found at Autopsy", is probably recognized as the best pathologic study as yet extant.

Discussion and Synopsis of the Above.

If it will be accepted that median bar is, except in the congenital cases, the result of inflammation in the prostate and the posterior urethra, then, if the condition is to be effectively dealt with, not only must the obstruction be removed, but the original cause of such obstruction, i.e., the prostatitis must be treated after such obstruction is removed.

In all cases coming to the surgeon, with the signs and symptoms of obstruction at the bladder neck, a careful diagnosis must be made and the condition accurately known before operative interference of any kind is attempted. With the means at our command at the present time it is negligence if an error in diagnosis be made. It must not be forgotten that these two conditions, that is to say, adenomatosis of the prostate, and median bar, may co-exist; and if these two conditions exist in the same patient they must both be dealt with or a lack of cure will result.

Since the perineal prostatectomy is practiced very little, and since median bar cannot be dealt with very well from above, and cannot be dealt with at all if the condition be unrecognized; since cystotomy from above carries with it more danger in old men than entering the urethra and bladder from below; therefore to operate from above for the purpose of making a differential diagnosis as to the cause of obstruction at the bladder neck is unwarranted. The surgeon who fails to make a diagnosis before operation is, or in the future will be, at fault.

For a cure of this condition, which heretofore

has been cured by many men for variable periods of time, when such men recognized the condition with which they dealt, but which condition almost invariably returned to again plague the patient and eventually cause his death, the treatment must follow certain lines, and in the following discussion of the treatment no cognizance will be taken of any methods except only those which may grant possible success.

Treatment.

The proper treatment of this condition depends entirely upon the kind of obstruction met with. The classification into thin high bar and broad thick bar was made with a view to treatment. Bugbee advocated fulguration. And fulguration will deal successfully with obstruction due to enlargement of Home's and Albarra's glands, when there is no, or very little, formation of fibrous tissue. The author has been successful in a few cases of this type, employing fulguration, and its cure has been permanent. In no other class of cases does fulguration seem to be indicated. Where the bar has been formed at the expense of the bladder so that Young's punch may be hooked well into this obstructive tissue, Young's operation, as he recommends it, is ideal, and should, with proper after treatment, result in a cure. For the surgeon afraid to use this procedure as recommended by its author, because of fear of hemorrhage, a method recommended by Day, wherein he opens the bladder from above and uses the punch through the urethra, with his finger through the incision above, directing the excision, is at his disposal. And here it should be said that the fear of such hemorrhage is well warranted, and the author, for one, admits such fear, and is unashamed of it. This method of Day's has the additional advantage of digital examination of the neck of the bladder, thus proving that sufficient tissue has been excised. After the first excision, as recommended by Young, nothing further is to be seen and the work is blindly done. Day's procedure, however, involves the opening of the bladder from above, thus making a more major operation of that which might have been done with less danger to the patient.

In those bars which I have designated as thin high bars, whether formed at the expense of the bladder, or equally at the expense of the bladder and urethra, the Young punch is, as above stated, indicated.

In the broad thick bars, where the process has taken place at the expense of the bladder and the Young punch can be hooked well into this fibrous tissue, such excisor may be tried, although it has the disadvantage in these cases of not taking out sufficient depth of tissue and a cure is, therefore, not probable, no matter how many excisions are made at the sitting, because fibrous tissue remains to contract again. Where the bar has formed at the expense of the urethra, this instrument cannot be hooked into this fibrous tissue with advantage and failure will ensue with its use.

There is one instrument which can serve in

all the above mentioned cases, and it would seem for reasons hereinafter enumerated, to be best adapted. This is the instrument which will burn away tissue at the bladder neck. The reasons for its recommendation are as follows:

1st. It removes tissue just as an excisor does and there is no question that it causes a slough and the further destruction of more tissue afterward, resulting in better eradication of fibrous tissue than is accomplished with a cold instrument, and this is what we endeavor to consummate.

2nd. If the temperature of this instrument can be so regulated that a heat sufficient to destroy and remove the obstruction is produced while operating, and this heat not so great that it is too quickly accomplished, no hemorrhage will ensue.

3rd. The chance of infection, while still existent, is not so great with this instrument as with the cold knife, and it must be remembered that since all these cases are infected to begin with, general septicemia must be guarded against.

Chetwood's procedure, in which he removes this tissue with an instrument of his own device, similar to the Bottini instrument, is probably the most logical to date, and this because he makes an incision through the perineum first, and is thus enabled to examine the bladder neck with his finger before operating, as well as after he has completed the operation. Furthermore, he can deal with a stone with comparative ease (stone being a rather frequent complication in these cases). Should hemorrhage occur he finds himself nearer his field of work, and can control such hemorrhage with greater ease. The reason for his lack of complete success, in the author's humble opinion, will be dealt with later.

Caulk has devised an instrument, shaped and arranged as is Young's instrument, but the hot knife is used in place of the cold knife. This knife is heated, as are all other hot knives, for this purpose, by the current. This instrument is not yet on the market.

For the past three years the author has dealt with these cases in the following manner and for the following reasons:

First—In the cases for which fulguration is recommended above, fulguration was used.

Second—All other cases are handled as follows:

A buttonhole incision is made in the perineum so that entrance may be gained into the membranous urethra. The finger is inserted into the posterior urethra and then into the bladder, thus dilating the internal sphincter and posterior urethra. The urethra has then been thoroughly dilated with a glove stretcher or a smooth bladed large sized uterine dilator. Much time has been consumed in this last mentioned procedure. Then either Young's punch or a

Bottini instrument has now been used for the excision.

The bladder neck has then been carefully examined so that it might be determined that sufficient tissue had been removed. Next the bladder has been examined to confirm cystoscopic findings, with the finger. Removable stones have next been dealt with.

The largest sized perineal drainage tube that could be used was then inserted into the bladder and permitted to remain in situ for seven days. The above procedure dilates the posterior urethra which is contracted in these cases. The use of a large sized drainage tube is possible and blood clots in the bladder can be easily removed. The large sized drainage tube, constituting a permanent dilator of the posterior, that is to say, prostatic urethra, for seven days, is decidedly a curative agent for the existing prostatitis. What room has been gained at the internal sphincter by the excision is not lost but on the contrary maintained by the pressure of this large drainage tube. The punch instrument or the burning instrument may be removed and reinserted with great ease through this incision and with less traumatism than occurs with repeated removals and reinsertions of such instruments into the bladder through the unincised urethra. All advantages gained by a cystotomy from above may be had by means of this incision from below with less danger and with less aftermath and ill effects to the patient.

This drainage tube in situ for eight days enables the surgeon to practice lavage of the bladder with greater ease than could be accomplished through a smaller sized indwelling catheter introduced through the external urinary meatus.

After Treatment.

If there is to be no recurrence of this condition, posterior urethral dilatation with a Kollman dilator must be practiced after the patient leaves the hospital, together with prostatic massages, until the patient is the possessor of a prostate of normal consistency instead of the hard fibrous prostate which belonged to him when he suffered.

It may well be asked why these posterior urethral dilatations together with prostatic massages might not clear up and cure this condition without operation. Sad experience has shown that not only is this procedure ineffectual without removal beforehand of the obstructive tissue, but the reaction is so severe, even when the dilatation or the massage is practiced, and the results so worthless, and the attempt so sure of failure, that the idea may be dismissed.

It must not be forgotten that the test of cure is time, and until a number of years have elapsed it is not proper to report cures of these cases, simply because the symptoms have been relieved, for a period varying from one to three years.

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(This paper was discussed jointly with the one on Cystitis—Its Diagnosis. The discussion follows the latter article in this issue.—Ed.)

CYSTITIS—ITS DIAGNOSIS.*

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In presenting this paper it is not my object to review the subject in the usual text book manner or go into the detailed and minute pathology of the group of symptoms which the average practitioner usually designates cystitis. I intend to present a series of cases that I have seen recently and hope that by so doing I can lay stress upon the futility of trying to diagnose cystitis by symptomatology and easily ascertainable objective findings.

The classical symptoms of so-called cystitis are not to be depended upon in diagnosis of bladder inflammation, there being no definite knowledge of the actual pathology responsible for the clinical manifestations, the cystitis almost always being but one of the symptoms of a usually more serious condition; and finally, treatment based upon symptomatic conclusions is not only futile but absolutely faulty. Especially is this true in cases showing any tendency toward chronicity.

Leo Buerger has probably classified the genitourinary and extra-genitourinary lesions that produce the symptom complex called cystitis in the most comprehensive manner, and we can use his classification to a good advantage in arriving at our differential diagnosis. He classifies these lesions under the following heads:

1. Renal lesions.
 - a. Tuberculosis of the kidney (very common).
 - b. Calculi with or without infection.
 - c. Hydronephrosis.
 - d. Urinary concretions.
 - e. Renal crisis.
 - f. Pyelitis.
 - g. Pyelonephritis.
 - h. Pyonephrosis.
 - i. Metastatic or embolic infectious lesions.
2. Ureteral lesions.
 - a. Ureteral calculi.
 - b. Stricture.
3. Bladder lesions.
 - a. Tuberculosis.
 - b. Ulcers, other than tuberculous.
 - c. Foreign bodies.
 - d. Calculi.
 - e. Tumors, benign and malignant.
 - f. Leukoplakia.
 - g. Malakoplakia.
 - h. Syphilis.
 - i. Edematous lesions about sphincter, extension from urethra and prostate.
 - j. Intravesical intrusion of prostatic adenomata.
 - k. Diverticula.
4. Lesions of the bladder neck.
 - a. Fibrosis of the sphincter region.
 - b. Contracture of bladder neck or so-called median bar.
 - c. Submucous adenomata and fibromata.

5. Prostatic lesions.
 - a. Prostatitis.
 - b. Hypertrophy adenomata.
 - c. Tuberculosis.
 - d. Carcinoma.
 - e. Abscess.
 - f. Calculi.
6. Seminal vesicle lesions.
 - a. Vesiculitis and perivesiculitis.
 - b. Tuberculosis.
7. Urethral lesions.
 - a. Gonorrheal urethritis.
 - b. Stricture.
 - c. Calculus in posterior urethra.
 - d. Polyp of the verumontanum.
8. Extra-vesical lesions.
 - a. Pelvic abscess from adnexa.
 - b. Tumors, uterus and adnexa.
 - c. Hemorrhoids and carcinoma of the rectum.
 - d. Vesico-vaginal fistula.
9. General conditions.
 - a. Constipation.
 - b. Ovarian congestion.
 - c. Neuroses.
 - d. Chemical changes in urine, such as phosphaturia, etc.

A mere glance at this classification should cause us to hesitate before making a diagnosis of cystitis from symptomatology alone, for unless the causative lesion itself is found, grave results to the patient's health and perhaps considerable humiliation for the physician himself may ensue.

To arrive at a proper conclusion as to the real lesion, or lesions, responsible for the production of these symptoms, a definite, systematic, routine examination should be instituted consisting of:

1. A careful clinical history.
2. A thorough general physical examination.
3. A dependable chemical microscopic and cultural examination of the urine.
4. Examination of the external genitals; rectal palpation in the male, vaginal and bimanual in the female.
5. A urethroscopic examination of the anterior and posterior urethra.
6. A cystoscopic examination of the bladder together with ureteral catheterization.
7. Plain x-ray plates of the kidney, ureters and bladder, followed by pyelography and ureterography if necessary.

It is readily admitted that such work as cystoscopy and ureteral catheterization is not practical for the average general practitioner, but properly belongs in the hands of the trained urologist.

In the time that is allotted me I will be unable to cite cases under each heading of Buerger's classification. I have selected the following cases because of the fact that the predominating and often the only symptoms were those of bladder inflammation. I have left out many of the things consequent upon routine examination, and will only bring out the most im-

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

portant facts bearing upon the symptom complex.

Case 1: Male Italian, age 40, storekeeper. Referred because of the inability of his family physician to relieve his symptoms of cystitis for which he had been treating him most of the time for the preceding three years. The symptoms of bladder inflammation were supposed to have been the sequelae of an old gonococcus infection. Family history negative. Previous illness: always well up to five years ago when he contracted gonorrhea. He states he has been under treatment most of the time since. For the last three years he has had a gradual progressing frequency of urination both day and night. Some terminal tenesmus. He now voids as often as every twenty minutes and suffers severely during the act. His general physical examination reveals nothing abnormal. Genitals normal except for a small meatus, with a slight mucoid discharge which, upon examination, shows many epithelial cells, rare pus cells, and no bacteria. Urine: first and second glass tests both cloudy and full of shreds; reaction, acid; specific gravity, 1.011; trace of albumin; large number of pus cells; no bacteria upon culture. Prostate and seminal vesicles normal to palpation and the secretion expressed upon massage is normal. Meatus cut to size 30 F. and patient cystoscoped. Bladder contracted. Capacity limited to three ounces. Mucous membrane shows chronic inflammation throughout with one or two superficial ulcerated areas below the left ureteric orifice. Left ureteric orifice gaping and a thick swirl of pus exudes with each efflux. Both ureters catheterized to pelvis. No urine from left side. Normal specimen from right side. Capacity of the right pelvis 7cc.; left, 58cc. Phenolphthalein administered intravenously appeared in three minutes from the right kidney with elimination of seven percent in fifteen minutes. No phthalein appeared from the left kidney during the half hour of observation. The pyelogram of the left kidney shows that the kidney is lower than normal and that the pelvis is greatly dilated with calyces practically obliterated. Diagnosis in this case was left pyonephrosis and nephroptosis, the kidney having practically no function. Subsequent nephrectomy resulted in absolute cessation of all his bladder symptoms. Five years' treatment of this case of "cystitis" resulted in the loss of one kidney to the patient.

Case 2: Male farmer, age 28, white, married. Chief complaint is extreme frequency of urination, every fifteen or twenty minutes, attended with severe terminal tenesmus. Family history has no bearing on this case. Denies venereal disease. Past medical history negligible except that he had influenza in 1918. The present trouble began one and one-half years ago with a slight frequency of urination both day and night. Consulted his physician who called it cystitis, prescribing internal urinary antiseptics and bladder irrigation. Was temporarily relieved, but as soon as treatment was dropped he began to have an increase in severity of all his symptoms. There were times when he

passed blood after voiding. For the last six months he has been under the care of a physician, with but temporary periods of relief. Two weeks before this case was seen all his symptoms became extremely aggravated, and at the time of examination he was voiding every fifteen to twenty minutes day and night, with much pain during and after the act. Urgency was marked. Examination shows a man in much distress. Genitals normal. Urine full of pus, albumin and a few red blood cells. Patient cystoscoped same day. Bladder capacity limited to two ounces of fluid. Tolerance very poor. Entire bladder mucosa edematous, thickened, and greatly inflamed. Right ureteric orifice located and ureter catheterized. Left orifice not seen. Urine from the right side contained many pus cells but no bacteria. The following day under ether the patient again was cystoscoped and both ureters catheterized. Urine from both sides contained many pus cells and a few red blood corpuscles; culture negative. Stained smears for tubercle bacillus were negative. Guinea pigs injected at this time and autopsied four weeks later revealed no evidence of tuberculosis. Because of his intolerable bladder, pyelograms were not made at this time, but suprapubic drainage was instituted and maintained for two weeks. Patient immediately began to pick up, eat well, and sleep well. His blood creatinine had fallen from 2.5mg. per 100cc. of blood to 1.75mg. per 100cc. during this drainage period. He now began to pass urine through the urethra at first about every half hour. At the end of four weeks he could hold his urine from three to four hours and was fairly comfortable. Subsequent cystoscopy and ureteral catheterization demonstrated a clear normal urine from his right side and a foul, thick urine from the left side containing many pus cells. The left kidney pelvis held 40cc. of fluid and the pyelogram demonstrates a typical dilated pelvis with distorted calyces and a dilated ureter. A phenolphthalein functional test was normal on the right side with one percent in fifteen minutes from the left side. A nephrectomy was advised but rejected because he was so much improved as to all his symptoms. This man, suffering with a left pyonephrosis, will certainly have a recurrence of his cystitis sooner or later.

Case 3: The next case is that of a male Greek, age 24, single, whose family history is negative. Referred to me because of a protracted cystitis, not relieved after eighteen months' treatment. The past history of this patient reveals the fact that he had an abdominal operation five years ago for a condition which was diagnosed tuberculous peritonitis. Four years ago he had a left epididymectomy for a tuberculous epididymus. Despite the suggestive history he was under treatment for frequency and painful urination by bladder irrigations over a period of eighteen months by one physician. Cystoscopy revealed a chronically inflamed mucosa with typical ulcerated areas about the right ureteric orifice. Bladder capacity four ounces. Tolerance to distention ex-

tremely poor. Both ureters catheterized. Urine from left side normal. Urine from right side contained many pus cells and a trace of albumin. The stained smears contained many staphylococci. The left kidney pelvis held 37cc. of fluid, and the pyelogram shows a dilated pelvis. Despite the fact that the tubercle bacillus was not isolated, the history of this case, together with his ulcerated bladder and pyonephrosis, was sufficient evidence to justify a diagnosis of tuberculous pyonephrosis with secondary infection of the right kidney. Nephrectomy proved this to be correct and the case, seen six months later was free from his cystitis.

Case 4: The next case is that of a man, age 26, who had been having irritable bladder symptoms off and on for the last five years, with an occasional attack of hematuria. During the last few months previous to this examination the patient was under treatment for cystitis. At the time of examination he was voiding every thirty to forty-five minutes, the urine being highly colored with blood. The examination was conducted in the usual routine manner. The bladder being absolutely normal, the ureters were catheterized. Urine from the left side was normal; that from the right side contained a great deal of blood. The radiograph with x-ray catheter reveals a shadow which is presumably a stone in the pelvis of the right kidney. The patient was operated upon and a stone removed from the kidney pelvis. He has not had cystitis since.

Case 5: Farmer, age 67. The patient has had extremely frequent and painful urination, passing small amounts of urine at a time, which was very thick and ropy with pus. At times he was unable to urinate and it would be several hours before he could get the stream started, during which time he suffered agonizing pain. He had gonorrhea thirty-five years previously. In 1919 he had a severe attack of cystitis, and was treated by bladder washes, but states his physician had to use a small metal catheter in order to get the fluid into his bladder. Examination revealed a tight stricture at the bulbo-membranous junction which admitted a No. 12 Lefort sound only. Suspecting trouble higher up and not being able to cystoscope the patient at this time, a plain x-raying of the left kidney region revealed a shadow which was taken to be a large stone impacted in the upper portion of the ureter. External urethrotomy was performed and perineal drainage instituted, preliminary to operation for the stone in the ureter. At the same time the patient was cystoscoped through the perineal wound, and his right ureter was catheterized, demonstrating a normal right kidney. In the left ureter the catheter met an impassable obstruction at a distance of 26cm. No urine obtained from this side. Drainage was maintained for two weeks and as the patient's condition was vastly improved a second operation was performed. The left kidney was found to be a large thin walled pus sack, containing but very little kidney tissue. This sack, together with that part of the ureter containing a large stone, was re-

moved. The patient did very well until the fourteenth day, at which time he developed an erysipelas of the wound and died within a short time. Had this case of cystitis been investigated more thoroughly earlier in his life he might still be living.

Case 6: A woman, aged 40, married, soon after an operation in which a hysterectomy was performed, developed the bladder symptoms usually diagnosed as cystitis. She was treated for the same with temporary improvement but has continued to have recurrent attacks of her trouble. During the last year she developed pain of a dull character in the left kidney region. This pain was intermittent, increasing in severity during attacks until relieved by the passage of large quantities of urine. Cystoscopy was performed and a slightly congested area near the left ureteric orifice was seen. The ureteral catheter met an obstruction at a distance of 8cm., in the left ureter. Several attempts to enter the left kidney pelvis by dilating the stricture was a failure. The ureterogram shows a definite stricture of the ureter opposite the first piece of the sacrum. Some of the fluid has passed beyond the stricture demonstrating a dilated ureter above. If it had been possible to inject the pelvis of this kidney I am sure it would have been found to be greatly enlarged. It is possible that the stricture was caused by some trauma at the time of her operation.

Case 7. This case has certainly been a tragedy. A married woman, age 30, twelve years ago had an acute attack of pain in the right side which was promptly diagnosed appendicitis and an operation was performed without giving her relief from her pain. She began to notice a frequency of urination and nocturia immediately after this operation, and also noticed a profuse vaginal discharge. She had another abdominal operation at this time but does not know what was done. Thirty days later she was operated for a third time when a supra-vaginal hysterectomy was done. She still continued to have her bladder distress and it has continued with periods of quiescence up to the present time. During the last three years the attacks have become much more aggravated. At the time of our examination she said that the urgency, frequency and nocturia were almost constant. Cystoscopy was attempted but due to an extremely intolerable bladder was a failure. Palliative treatment relieved her to such an extent that she was successfully examined a week later. The bladder mucosa was congested and somewhat edematous. The urine from the left kidney was filled with pus cells with many Gram-negative intracellular diplococci. The husband was told that she had gonorrheal pyelitis and then confessed that he contracted gonorrhea shortly before her first operation, but thought he was cured. This case promptly cleared up under pelvic lavage of mercurochrome 220, one percent.

Case 8: A nurse, age 30, had been having polyuria, nocturia, and frequent painful urination during the day for six months. Her physician was treating her at the time for pulmonary

tuberculosis and suspected after the bladder condition failed to get well that she had a tuberculosis of the kidney. The cystoscopic examination revealed a perfectly normal bladder mucosa. The urine from the left side was normal in every respect but that from the right kidney contained many pus cells and the tubercle bacillus was found in the stained smears of the sediment. This is a typical case of bladder irritation with absolutely no lesion in the bladder itself. It is a well known fact that the symptoms are due at first to the irritating urine from the diseased kidney, rather than actual pathology of the bladder mucosa. Nephrectomy cured her "cystitis". Every protracted case of cystitis that does not respond to treatment or is made worse should be suspected of being of tuberculous origin.

Case 9: A man, age 42, married, six months previously to this examination developed frequent, painful urination with free pus exuding from the urethra. Was treated for gonorrhea for six weeks and, while better, never became free of all his symptoms. Two weeks before I saw him he began to have an increase in severity of all his symptoms. His urine at this time was very thick and ropy and he passed small quantities every five to ten minutes. Microscopical examination: many pus cells, many red blood corpuscles and a florid cultural growth of colon bacillus. When cystoscoped it was necessary to use a large amount of fluid to clear the bladder sufficiently for examination. A single polyp-like tumor was seen just anterior to the right ureteric orifice. After removal of the tumor and all drainage this man recovered and has not had any recurrence up to this time.

These are mostly cases of lesions of the upper urinary tract and are of the type least often recognized unless they are given the benefit of a special examination. Lesions of the prostate, seminal vesicles and posterior urethra are not so often overlooked. I trust that these few cases are sufficient to enable me to draw the following conclusions:

1. That cystitis is rarely a disease of the bladder alone.
2. That lesions anywhere in the genitourinary tract may produce symptoms of bladder inflammation.
3. That lesions without the genitourinary tract are capable of producing cystitis symptoms.
4. That the earlier the causative factor is sought for and found, the less amount of permanent damage is in store for the patient.
5. That treatment for "cystitis" except in the early stages of acute inflammation is the height of folly.

DISCUSSION.

Wm. M. Spitzer, Denver: The term "cystitis" merely means a certain group of symptoms, which symptoms rarely have their cause or origin in the bladder itself, although the word should mean an inflammation of the urinary bladder.

Most frequently these symptoms are caused by an inflammation of the bladder as a result of infection by pus pouring down from the kidney or

kidneys, or an infection of the posterior urethra. In this connection it must not be forgotten that the trigon is really a portion of the posterior urethra. Originally there was no bladder, but as it became necessary for the animal to hold his water, whether it were for one reason or another, a bladder gradually developed, so that all the higher animals have urinary bladders. These bladders are of an entirely different construction, and lined by a different epithelium than that of the urethra, the ureter, or the pelvis of the kidney; for this reason the bladder is not subject to the same inflammatory processes that the rest of the urinary or poietic tracts are liable to. Therefore, these symptoms of "cystitis" are, as a very general rule, due to lesions elsewhere in the urinary tract or in the poietic tract. It follows that when a patient presents symptoms of "cystitis", a thorough investigation of these two tracts is in order.

I wish to compliment Dr. Low on the excellence of his pyelographs and to call your attention to the advance made in this work, giving particular credit to Dr. W. F. Braasch, who has published a book on Pyelography. This book goes deeply into the entire subject, and it is surprising how much the author diagnoses from the picture of the pelvis of the kidney, and its deformities, by means of the x-ray. One must never forget, however, that a diagnosis of kidney lesions is made from many things, of which the pyelograph is only one, and most frequently a small one.

There is one statement, which I believe the author made, with which I wish to differ. He maintains, if I heard correctly, that the conditions of the posterior urethra, causing the classical symptoms of "cystitis" are not as frequently overlooked as conditions above the bladder causing the same symptoms. I believe that conditions in the posterior urethra and the genital adnexa giving rise to these symptoms are much more frequently overlooked than pathologic conditions existing above the bladder.

Leonard Freeman, Denver: The paper of Dr. Spitzer was so clearly and scientifically presented, as he always presents everything, that it deserves discussion. It is an important subject. This bar formation at the neck of the bladder has given rise to much discomfort to operators as well as patients, especially in times past. I want to cite one or two instances to illustrate this. A good many years ago a man was operated upon in Denver for an inability to pass his urine, by an excellent surgeon. When the operation was finished he still could not pass his urine, and the suprapubic opening through which the operation had been done (contrary to the advice of Dr. Spitzer), refused to close. It remained open for a long time. He then went to the largest surgical clinic that we have in the country, and there he was studied for quite a length of time, and another operation was done in which a large stone was removed. Again the operative wound refused to close and the man could not pass his urine. He then went for nine years after that with a large tube in the suprapubic opening. His life was hardly worth living. At the end of that time he came under my observation. I found a large opening in the bladder through which a finger easily could be passed. The internal meatus seemed to be dilated instead of small. There did not seem to be any reason on earth why the man should not empty his bladder, and the fistulous opening close, yet it did not do so. It then occurred to me that perhaps he had some sort of a bar that I could not recognize easily, and so I used the electric knife (Bottini instrument) that Dr. Spitzer illustrated in one of his pictures, and divided a theoretical bar at the outlet of the bladder. Immediately the whole aspect of things changed. The wound in the suprapubic opening closed within a comparatively short time, and for the last few years the man has been in perfect condition, passing his urine freely, and with full control.

Oliver Lyons, Denver: The more closely we analyze our cases of frequent, painful urination,

with blood and pus in the urine, the fewer diagnoses of cystitis will be made. Cystitis is not a disease. The normal bladder, like the skin, is singularly resistant to infection. In the absence of congestion bacteria can be injected into the bladder with perfect impunity without causing harm. The noticeable exceptions are the proteus hauseri and some strains of staphylococcus which decompose urea into ammonium carbonate and ammonia. The ammonia injures the epithelial lining. The proteus or staphylococcus can then enter the walls and set up an inflammation. The trigon becomes inflamed by the extension of inflammation from the ureter and urethra. This is a familiar cystoscopic picture. Such inflammations remain localized and do not properly constitute cystitis unless some predisposing cause such as trauma, retention of urine, tumor, stone, diseases of the nervous system or diabetes makes the bladder vulnerable. Cystitis is almost always a secondary infection depending upon something else, and we should never think of it as primary. We too often use the word cystitis to cover some important pathological fact such as a prostatitis, vesiculitis, or infected kidney. We often speak of post-operative cystitis. This is of no importance. The important lesion is an acute renal infection. Or we say acute gonorrheal cystitis. This is also a matter of no importance. The important lesion is an acute prostatitis. Cystitis of childhood or of pregnancy means the same thing—nothing more than names to cover up the real pathological lesion which in 90 per cent of cases is a renal infection. I think we should use the word "cystitis" with the greatest reserve, and while I recognize that cystitis may, under unusual conditions, and for a brief period of time, exist as a separate entity, I prefer to look upon it as a secondary disease of the genital adenxa or infected kidney. Then, too, we often see cases which produce no symptoms. For instance, a patient with some nervous lesion and a paralyzed bladder may show an extensive cystitis with the cystoscope, yet have no subjective symptoms whatever. I hope none of you will leave here with the impression that cystitis is a frequent disease or the diagnosis easy. I have been very much interested in Dr. Spitzer's paper. It is very accurate, interesting and valuable, and I quite agree in general with the operative measures and details in regard to them which Dr. Spitzer has advocated. Accurate, because this is a logical sound method of surgical relief of these conditions. Valuable, because it differentiates and emphasizes the different conditions that cause obstruction to the flow of urine at the vesicle neck. Interesting, because no surgical procedure has had such an interesting and striking history in its development. Then the operative relief of prostatic obstruction of the vesicle neck, the progress of the treatment of this class of cases has largely accounted for the placing of urology upon a definite footing as a highly specialized branch of surgery. The public are beginning to understand that urinary disorders are due to true physical causes and not to habit or the consequences of old age to which they must become reconciled. From fifteen to twenty percent of all vesicle neck obstructions are due to some type of median bar obstruction; therefore, its significance appeals to us and it is this type of cases that we must particularly concern ourselves with as it is the one avenue through which we can hope to improve our functional results and mortality statistics. At the present time there is no uniformity of opinion in the treatment in this class of cases and it offers a field for investigation and study. This type of operation has not become as popular as it deserves, the reason being hemorrhage and absorption. On account of these complications to the operation high frequency, cauterization and incision through the endoscope with small cautery blades have been advocated and found effective in a few cases. The Bottini, Wishard and Chetwood galvano-cautery operations are fairly satisfactory but too complicated. Partial and complete prostatectomy has been advised but we must remember that most of

these cases belong to the younger group and major operations should be shunned when possible. As Dr. Spitzer says the first operation of this kind was done by Guthrie nearly a hundred years ago and since that time many incompetent surgeons have entered the field with poorly conceived and poorly executed technic. The results have been so minimized as to the difficulties of the operation and so magnified as to the beneficial results and the failures so grossly glossed over that many surgeons with a rather hazy understanding of the anatomy of the parts have attempted operations which they never finished. This naturally led to periods of retardation, but with a slow elimination of the undesirable and the selection of the good, with our present keener diagnostic methods and a better understanding of the pathology of the condition present this operation has become an established surgical entity.

Dr. Spitzer (closing): I have very little more to say. I wish to call your attention, however, to the fact that the paper read today was merely an abstract of the paper which will be published in Colorado Medicine.* The history of this subject is really romantic. Mercier published a description of this median bar in 1830, reading his paper before the Academy of Medicine in Paris. Civiale wrote on the subject extensively about 1839, showing his instrument for operating through the urethra, which was built on the same principle as Mercier's instrument, in that an incision of this bar was intended by both men.

A fight lasting over a period of years ensued during which Civiale finally admitted that he had stolen from an English surgeon, and pointed out that Mercier had done the same.

I am sorry that permission to discuss this paper when read was denied by the presiding officer, and am also sorry that I was not permitted to finish showing you the balance of the slides on the screen, because of lack of time. I am glad, however, that Dr. Lyons called your attention to the operative procedure, which I intended to show you on the screen, along with other operative procedures. I wish also to emphasize that these operative procedures are not as simple as they appear. One dare not cut a piece from the bladder neck without contemplating that he might have a hemorrhage following, which might be difficult to deal with.

I believe that Dr. Freeman told me about his case before, and the only comment I can make is that a median bar is not easily recognizable, with the cystoscope or by any other means.

PRESENT STATUS OF OPINION ON THE TREATMENT OF NEURO-SYPHILIS.*

LEO V. TEPLEY, M. D., DENVER

Should one fail to get the expected results in a given case of neuro-syphilis as treated by his own method, and should he attempt to look up the subject, he will find an abundant literature and numerous reports, but all are of a contradictory, confusing and misleading nature. Thus neuro-syphilis is treated best by pure mercurial inunctions, by mercury given intramuscularly, intravenously, by the mixed method, by the Swift-Ellis-Ogilvie modification, by mercurialized serum of Byrens, spinal drainage, etc., and one wonders just what treatment is best as a routine, and what indications should lead to variations.

Should one turn to the laboratory findings with the hope of obtaining there something more definite, clear and helpful, he will become more confused. As an illustration I would quote the

*Read before the Colorado Neurological Society, November 19, 1921.

following observers who all agree that neuro-syphilis takes place at the earliest period of secondaries, at the period of generalization, and their laboratory records are as follows: Ravaut finds abnormal cerebro-spinal fluid in 70% of cases; Klauder in 67%; Altman and Dreyfus in 66%; Dennison and Smith in 35%; Swift Ellis in 33%; Fordyce in 20%; and Wiley in 10%.

Again, some writers question whether an increase of a few cells and a slight increase of albumin and globulin is of any real importance. Workers like Solomon with a very large experience in the Boston Psychopathic Hospital, state that an increase in cells and globulin are not characteristic of any one disease. The question whether there is a special neuro-tropic virus of *spirocheta pallida* that causes neuro-syphilis is still debatable. It has illustrious supporters and just as worthy opponents. Should one turn to the subject of the spinal fluid as to its origin, function and composition, he will find himself at still greater loss, and so all along the line of every phase pertaining to neuro-syphilis.

The reason for all these conflicting statements is, in the opinion of the writer, due to three chief factors:

1. The highly organized and complicated nature of the tissue of the central nervous system.

2. That the great Judge of the Final Court of Appeals, Time, has not said his final word on the subject, and until a generation of syphilitic humanity, to quote Stokes, has been born, studied, treated by various methods, died, and passed through a gross and microscopic necropsy, no rigid standard of treatment is possible to formulate.

3. The extreme views held by the various observers with regard to the importance of clinical manifestations and serologic reactions as to just what constitutes a cure, whether clinical symptoms alone should be adopted as a criterion of treatment and cure, or serologic interpretation should have the final say. There is no question that many clinicians are over zealous and almost possessed of the idea of rendering a positive reaction negative regardless of other effects.

There are however, a few common points upon which most agree, which may be briefly summarized as follows:

1. Arsenic in one form or another is absolutely indispensable to the most efficient treatment of neuro-syphilis.

2. This should always be preceded by a course of mercury and iodide.

3. Small amount of treatment by arsenic is dangerous, as the spirochetes gain a certain amount of resistance and become arsenic fast. A neurorecidive is bound to take place and aggravate the initial condition.

4. If clinical symptoms disappear and all the serologic tests become negative by mercury and iodide and arsenic intravenously, no other treatment is indicated; but if the symptoms become stationary and if the serologic reaction persists in being pathologic, what is next to be done for the patient? It is here that the great contro-

versy begins, as to what is the best method for further procedure. The question as to the advisability of intra-spinal treatment arises. One school holds that if you cannot reach the central nervous system by the ordinary intravenous method, intraspinal medication will accomplish no more, and there is always the danger of precipitating an attack; and they call attention to the fact that arsenic has a selective action upon nerve tissue, that it is apt to cause not only an impairment of neuron resistance, but at times their actual dissolution. They ask, is it logical that with a patient along in years with positive serologic findings but who has not shown any clinical symptoms, we should institute intensive treatment, just because he has a positive Wassermann? Nonne says definitely, no. Then there are the Swift-Ellis-Ogilvie followers; as you all know, their method consists in giving arsenic intravenously and then immediately withdrawing a certain amount of blood, allowing it to clot, removing the serum under the most aseptic conditions, adding to it from two to four mg. of arsphenamine and injecting this into the spinal canal after twenty to thirty cc. of fluid have been removed. Byrens uses the same method excepting that he substitutes from one twenty-fifth to one fiftieth grain of mercury, claiming that its spirocheticidal action is greater than that of arsphenamine. Others again use both small amounts of arsphenamine and mercury simultaneously. The Byrens method causes very severe reaction and it has been abandoned by all excepting its introducer, but there is rather a favorable attitude toward intraspinal treatment by many syphilologists including Fordyce, whose ability as a clinician cannot be doubted, and who says, "if a patient after intensive treatment with mercury, iodide and arsphenamine shows little or no improvement in his symptoms, blood or fluid reaction, some other methods of therapeutic attack would be indicated. Rapid and decided clinical and serologic improvement after introduction of a new factor, even though the original procedure might be continued, would thoroughly suggest to a mind free from prejudice that the new factor was responsible for that change. I have demonstrated time and again the persistence of the positive phase of the spinal fluid in patients treated in the most intensive manner by the orthodox way over long periods with little or no change except in the cell count and slight clinical improvement. Intraspinal treatment has been followed by persistent negative phases and clinical improvement or cure. I, therefore, am becoming more convinced of its value, and believe the failure of others to obtain similar results due to imperfect technique or early discouragement because of slow results." Dercum, who formerly used the arsphenamized serum of Swift-Ellis, and who has reported very favorably upon its intraspinal application, contends of late that it is unscientific and that the good results obtained from it are due simply to the incidence of spinal drainage, and not to the introduction of auto-arsphenamized or arsphenamized serum into the subarachnoid space.

Dercum maintains that the cerebrospinal fluid is pre-eminently a fluid for the hydraulic suspension of the brain and cord. He quotes various authorities including Halliburton, who has done a great deal of work on the spinal fluid, who state that diffusion from the cerebrospinal fluid into the vessels is most rapid in the subcerebellar district, extremely slow in the spinal region, and especially slow in the lumbar region. He believes that diffusible substances introduced into the spinal canal pass rapidly into the veins. He further asserts that there is normally a balance between the pressure in the blood vessels within the cord and the pressure of the cerebrospinal fluid. It follows that if the pressure of the cerebrospinal fluid is abnormally increased the vascularity of the cord will be correspondingly diminished; less blood than normal would be able to enter its vessels. The withdrawal of the cerebrospinal fluid on the other hand, is followed by a vascularity of the cord, a relative hyperemia comparable to the hyperemia of Bier in surgery. In tabes and paresis the inflammation of the meninges leads to more or less occlusion of both the arachnoidal villi and the lymphatics. Spinal drainage then is directly indicated. It also results in a kind of spinal lavage.

This is in brief the present status of opinion regarding the treatment of neuro-syphilis. Confusing as it is, a happy mean of some kind is to be found and it seems to me that it can be determined by turning to the fundamental principles of the pathology of neuro-syphilis.

I think all agree that the most important point in the pathology is that it is a disease of the blood-vessels. The beginning of the process is an inflammatory one in the perivascular lymphatics and the end result is an obliteration of the lumen of the blood vessels. This obliterative endoarteritis has the final result of the shutting off of the circulation, causing the accompanying symptomatology. This undisputed pathologic principle is of tremendous therapeutic importance. It explains why the iodides, mercurials and arsenicals are so efficacious in syphilis of the exudative and gummatous type. It is because in these conditions the spirochetes have involved especially the lining membranes of the vessels. These structures are directly accessible to the action of remedies circulating in the blood, but in the characteristic obliterative endoarteritis all the medicinal agents cannot pass through the walls of the capillaries, and the nervous parenchyma gains no benefit from their action. It is here that the difficulty lies and not in the impermeability of the choroid plexus. It is a more diffusible and innocuous spirocheticidal substance that is necessary in order to affect the nervous parenchyma.

It is difficult to believe that the amount of arsenic in the blood serum injected into the spinal canal can be responsible for the great improvement we frequently see in persons afflicted with cerebrospinal lues. And lastly, as Hazen puts it, we really know but little of the time it takes for the arsenic bearing plasma to reach organisms that are tucked away in fib-

rous tissue nests. May not all of the valuable material be lost before it reaches the organisms? Until we get more knowledge of the biology of the spirocheta pallida the mixed method with spinal drainage would seem the safest procedure.

In looking through the literature with regard to details of treatment, one is impressed with the fact that men of most extensive experience in the treatment of syphilis abroad as well as in the United States, including our distinguished ex-president, Dr. H. T. Pershing, prefer mercurial inunctions to any other form of mercury.

As regards different makes of arsenic, one may safely say that as long as they pass the standard of the National Hygienic Laboratories in Washington, there is no preference as to which product should be used. Neoarsphenamine is not simply an arsphenamine in a convenient form for administration, as regarded by many; it has a decidedly different chemical formula and its behavior is different in the animal organism from that of arsphenamine. The maximum death rate as obtained experimentally upon guinea pigs is fourteen days for neoarsphenamine and twenty-four hours for arsphenamine. Neoarsphenamine has then accumulative action and may thus undermine the nerve tissue. Arsphenamine in the form of diarsenol has a greater spirillicidal action and better results follow its administration in neuro-syphilis according to Shamberg, Stokes of the Mayo Clinic and many others. Six injections of diarsenol at five day intervals in the dosage of one decigram per thirty pounds of body weight, preceded by one month of mercurial inunction, is perhaps the happy medium of procedure. This should not be repeated before six weeks' rest. Of late a number of German observers and a few of our own men are using silver salvarsan and they claim that it is more efficacious than salvarsan in every form of syphilis and is less toxic. General paresis has been treated chiefly abroad by administering to the patient either tuberculin or typhoid vaccine, and when his temperature goes up to 101°-102° he is given salvarsan. This is done with the idea that vaccine stirs up all the patient's defensive power and enables him to carry the medicinal agents to localities that could not be reached otherwise. Very marked remission and general improvement are reported by its advocates.

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News Notes

The secretary of the Colorado State Medical Society takes this opportunity of extending the Society's congratulations to Dr. Hubert Work of Pueblo, newly appointed postmaster general of the United States.

The engagement of Dr. Robert G. Packard of Denver to Miss Elfreda Van Meter, daughter of Dr. S. D. Van Meter, has been announced.

Dr. Dell W. Van Gilder of Denver and Miss Erma Louise Knippenberg of Cleveland, Ohio, were married in Denver February 16, 1922.

The date of the annual meeting of the Colorado State Medical Society has been permanently set for October 3, 4 and 5 at Colorado Springs.

Dr. C. G. McEachern, formerly of Denver, has removed to his old home in Greenville, Miss., and resumed practice in that locality.

Dr. and Mrs. D. O. Norton of Fort Collins have announced the birth of a son, John Burges Norton, March 7, 1922.

Mrs. Louise Wade, 254 Sherman Street, Denver, a graduate dietitian, has announced her readiness to undertake the regulation and supervision of diet, under doctors' directions, for patients who require continued special diet in such conditions as diabetes, nephritis, etc. She is also prepared to instruct patients in the preparation of their own diets, giving practical demonstration of proper measuring, cooking and serving.

Arkansas Medical Society "Home Coming" Meeting.

Arkansas doctors now residing in Colorado will be interested in the following letter. If some member who expects to attend the Arkansas meeting will so report to the Secretary of the Colorado State Medical Society, he will be given credentials as a fraternal delegate from Colorado:

Little Rock, Ark., March 1, 1922.

Dear Secretary-Editor:

The motif of our coming annual session to be held in Little Rock, May 17, 18, 19 next, is to be "the home-coming meeting," and we are very desirous of informing our old time doctors from Arkansas now practicing in other states, and stressing the fact that we shall expect them to be with us at the time indicated. This will be especially

applicable to those desiring to attend the meeting of the American Medical Association at St. Louis, as they can stop off with us, renew old acquaintances and resume their journey.

We shall appreciate it very much if you will carry a suitable news item in your journal, setting forth our good intentions, that those in your state may be reminded of the invitation extended them. This may seem unique, but in the ever changing present the unexpected happens daily. Therefore, we are relying on the cooperation and assistance of our friends in putting this meeting over.

Can you not send us a fraternal delegate?

Thanking you in advance for any courtesy that you may see your way clear to render and trusting that we may have the pleasure of a visit from you along with the others, we are,

Most cordially yours,

WM. R. BATHURST, Secretary.

DEATHS.

The death of Dr. Julia T. Hill-Crawford is reported to have occurred in California, December 21, 1921. Details have not yet been secured.

Notes From the Library

Complaint Box in the Library.

The Board of Trustees of the Medical Society of the City and County of Denver has established in the library a contribution box for the reception of suggestions, complaints, criticisms and all other offerings which may be thoughtfully and seriously designed for the betterment of the library and its conduct. All members of the county or state society are thus given a personal voice in the management of the society's most important asset.

Differential Centrifugalization.

In an article occupying less than two columns of the *J. A. M. A.* (Feb. 11, 1922, p. 410), MacCallum and Oppenheimer describe a method for the segregation of the specific infective agent in vaccinia which promises to become a classic in its field. Glycerinated vaccine lymph was centrifugated in a test tube and thus separated into three layers, "a solid mass of sediment, a thick turbid layer and a superficial less turbid layer". The corneas of a rabbit were inoculated with specimens of the lymph taken, one from just above the sediment and the other from the clearer top layer of lymph. In each case a typical vaccine lesion was produced by the top layer while the bottom layer was ineffective. Therefore the specific gravity of the vaccine bodies is less than that of the matrix in which they float. By mixing the vaccine fluid with Locke's solutions of various specific gravity it was found that the virus had a specific gravity of about 1.12. With this knowledge it was possible to concentrate and purify the virus which, examined under the microscope with dark field illumination, disclosed myriads of minute granules, very much smaller than streptococci or staphylococci. The authors suggest that their method of differential centrifugalization "may afford a procedure for the purification of vaccine lymph from bacterial and other contamination, but most important,

it seems to be a method applicable to the study of a long series of diseases in which the infective agent is as yet unknown or very difficult of isolation. Smallpox, chickenpox, measles, scarlet fever, influenza, ... common colds, ... and a host of other less common conditions occur to one at once as promising a possibility of approach from this angle".

H. S.

ACCESSIONS TO THE LIBRARY.

Sixty-three accessions since January 1 of this year, comprising bound journals, reports, transactions and books, are as follows:

Journals, gift of Dr. Sewall: Jahresberichte über d. Fortschritte der Anatomie u. Physiologie, Volumes 1-20; Jahresberichte ü. d. Fortschritte der Physiologie, Volumes 1-20; Progressive Medicine, v. 4, 1921; various bound journals, comprising Annals of Surgery, Surgery, Gynecology and Obstetrics, Medical and Surgical Clinics, etc., Dr. Tennant.

Reports and Transactions.

College of Physicians, Phil., Transactions, 1920.
Association of Life Insurance Presidents, Proceedings, 1921.

Rockefeller Foundation, Annual Report, 1920.

U. S. Library of Congress, Report of Librarian, 1921.

U. S. Surgeon General's Office, Annual Report, 1921.

Amer. College of Surgeons, Year Book 1921, 1922 (gift of Drs. Jayne and Shere).

American Laryngological Association, Transactions, 1919, 1920.

Western Surgical Association, Transactions, 1920.

U. S. Public Health Service, Weekly Public Health Reports, 1919-1921.

Deutschen Pathologischen Gesellschaft Verhandlung, 1921.

Imperial Cancer Research Fund, Scientific Report, 1921.

Journal of Urology, Dec., 1919; previously missing. Gift of Dr. Spitzer.

Books.

Berman: Glands Regulating Personality. 1921.

McCarrison: Studies in Deficiency Disease. 1921.

School of Salerno. 1922.

Vecchi, Paolo de: Modern Italian Surgery. 1921.

Gift of Dr. Nacamuli.

Preuss: Biblisch Talmudische Medizin. 1921.

Campbell: Textbook of Surgical Anatomy. 1921.

Atkinson: Treatise on Cataract. 1921.

Mayo Clinic: Collected papers. 1920.

Porter: Applied Psychology for Nurses. 1920.

Gross: Blood Supply to the Heart. 1921.

Ochsner (Prac. Med. Ser.): General Surgery. 1920, 1921.

Shattuck: Principles of Medical Treatment.

Ormsby: Practical Treatise on Diseases of the Skin. 1921.

Morrow: Diagnostic and Therapeutic Technic. 1921.

Ruffer: Studies in the Paleopathology of Egypt. 1921.

Bard: Two Discourses Dealing With Medical Education in Early New York. 1921.

Owen: Medical Department of the U. S. Army During the Period of the Revolution. 1921.

Worth-while articles on ophthalmology selected by Dr. Jackson's office:

Marx: Eye Symptoms Due to Osteomyelitis of Superior Maxilla in Infants. British Journal of Ophthalmology, Jan., 1922, pp. 25-35.

White: Aeration of Posterior Accessory Sinuses in Acute Optic Neuritis. Boston Medical & Surgical Journal, Feb. 9, 1922, pp. 172-180.

King: Total Bilateral Blindness Cured by Drainage of Sphenoid and Ethmoid Cells. J. A. M. A., Feb. 18, 1922, p. 508.

BOOK REVIEWS.

Collected Papers of the Mayo Clinic, Vol. 12, 1920, published in 1921.

This work is a large volume of 1355 pages; the number of contributors is sixty. It is divided into the following sections:

- (1) diseases of the alimentary tract,
- (2) urogenital organs,
- (3) ductless glands,
- (4) heart,
- (5) blood,
- (6) skin and syphilis,
- (7) head, trunk and extremities,
- (8) nerves (one paper on sphenopalatine ganglion headaches),
- (9) technic,
- (10) general, including travelogues on South America.

Vinson describes their method of applying radium in cases of esophageal cancer. The results are not reported as sufficient time has not elapsed, but the treatment promises a good deal, and other measures radical and palliative, are not successful.

W. J. Mayo emphasizes the value of the x-ray in stomach lesions and states it establishes the diagnosis in ninety percent. The main characteristics of ulcer of the posterior stomach wall are: chronicity, lesions usually large, more or less continuous distress, occasional exacerbations from localized peritonitis, and anemia often with cachexia. At operation, it is sometimes difficult to determine whether the condition is ulcer or cancer, and microscopical examination at the time of operation is necessary to settle the question.

Aschoff is quoted as stating that if the lesion is originally cancer the base of the ulcer will prove to be cancer. Wilson and MacCarty have shown that in cancer developing on ulcer the overhanging margin is cancerous and not the base.

Stomach ulcers may be divided into acute and chronic. Chronic ulcers may be divided into simple and carcinomatous. Simple and carcinomatous chronic ulcers occur as single or multiple lesions in any part of the stomach, but usually occur near the pylorus in the small curvature or posterior wall, although they do rarely appear in the anterior wall and greater curvature. There are two portions of gastric ulcer of interest and importance, the border and the base of the crater. The base of the crater of a simple or carcinomatous ulcer may involve one or more coats. Chronic ulcers associated with carcinoma always involve the mucosa and one or more of the other coats.

Chronic gastric ulcers larger than 2 cm. in diameter are usually but not always carcinomatous, yet many chronic ulcers less than 2 cm. in diameter are carcinomatous. The roentgenologist may be able to determine the diameter of an ulcer.

Organic hour-glass stomach is seen most typically in ulcer but also is found in gastric cancer and gastric syphilis. There are two types of spasmodic hour-glass stomach: intrinsic and extrinsic. Intrinsic spasm arises from a gastric lesion, usually an ulcer. Ulcer may produce a local spastic indrawing of the gastric wall. The organic hour-glass accompanying tuberculosis and syphilitic lesions is usually accentuated by spasm.

Extrinsic spasm is produced by lesions outside the stomach or is accompanied by such lesions. It is an occasional cause of hour-glass deformity, as seen roentgenologically, and has been noted in association with duodenal ulcer, disease of the gall-bladder or appendix, and sometimes in emotional states.

For the differentiation of intrinsic and extrinsic spastic deformity tincture of belladonna is prescribed, starting with twenty drops and increasing the dosage till the physiological effects occur. The patient is then reexamined. Belladonna will not differentiate spasmodic and organic forms of hour-glass stomach, but it will differentiate the intrinsic and extrinsic spasms. It has been Carman's experience that an hour-glass stomach that resists belladonna to the physiological effect means a lesion of the stomach or duodenum.

Mann describes a cholecystitis in the dog pro-

duced by the intravenous use of Dakin's solution. The reaction occurs almost immediately and is completed with the first twenty-four hours. The reaction of the inflamed gallbladder may last for several weeks. Gradually the condition clears up and in three months the gallbladder may appear normal except for a few white scars. In some cases it becomes chronic. C. H. Mayo states it is a debatable question whether the milder cases of cholecystitis should not be considered medical instead of surgical. In discussing tuberculosis enteritis Carman states the roentgen diagnosis is less certain than in tuberculosis of the large bowel. Where there is ulceration of the mucosa there is marked spasm. He has seen delay with irregular filling and segmentation of the small bowel. Rose now writes a series of seven papers about 145 pages, on influenza and pneumonia.

In discussing the etiology of pyelonephritis Bumpus and Meisser conclude that this disease may be due to focal infections of streptococci which have a selective affinity for the urinary tract, and that the colon bacillus so commonly found is of secondary importance. In the treatment of menorrhagia of patients over thirty-five years radium is recommended for those with the fibrous type of uterus and for those with small fibroids and also in the menorrhagia of the menopause. Abdominal myomectomy should be considered in those of thirty-five and younger, and large tumors are best treated surgically. In discussing cysts of the pancreas Judd concludes they are difficult to diagnose because they do not produce a definite syndrome, and that the association of gallbladder disease in seventeen of forty-one cases must have some etiological significance. Stokes writes on the use of the arsphenamins and gives a bibliography of one hundred and four articles. On the prophylactic treatment of syphilis, he states in cases of exposure, twenty-four hours old, he uses two injections on successive days.

Henderson describes their method of preparing and using beef-bone screws in fractures, and prefers the massive bone-graft to the intramedullary or the inlay method except perhaps in the tibia. The graft must be large enough to add twenty to twenty-five percent more bone to the fractured area.

In dealing with the question of jaundice W. J. Mayo questions the existence of Hanot's cirrhosis and believes many of these may be hemolytic icterus producing progressive anemia and the treatment is splenectomy.

W. J. Mayo is of the opinion that group medicine, in some form, is the only means by which the patient can receive the attention to which the advancement of medical science entitles him.

F. E. R.

The Relations of Tuberculosis to General Bodily Conditions and to Other Diseases. (The First Mitchell Lecture on Tuberculosis, delivered on November 1st, 1921, before the Royal College of Physicians, London). With an appendix on literature relating to the subject of So-Called Spontaneous Idiopathic Pneumothorax, etc. By E. Parkes Weber, M.A., M.D., F.R.C.P., Physician to the German Hospital, London; formerly Physician to the Mount Vernon Hospital for Chest Diseases. London: H. K. Lewis & Co., Ltd., 1921.

This lecture is notable from several points of view. It represents the conclusions of a judicial, erudite mind enriched by broad experience in phases of clinical pathology which are rarely followed to their source. Not to be ungracious, it may be said that the literary manner of the essay suggests a syntactic ankylosis which makes its progress halting and lacking the usual grace of English diction. Every medical man, even the tuberculosis specialist, would profit by an occasional reading of such a lecture as that delivered by Dr. Weber. He touches on such practical themes as the present position of the tuberculosis problem, on the routes of entry of the tubercle bacillus, on the problems of immunity against fresh infection, on the influence of other diseases

on tuberculosis and, incidentally, the influence of tuberculosis on other diseases. The student of tuberculosis will feel indebted to Dr. Weber for the rich bibliography appended to his article, especially as covering the "Literature relating to the subject of so-called Spontaneous Idiopathic Pneumothorax in Apparently Healthy Persons."

H. S.

The Blood Supply to the Heart, In Its Anatomical and Clinical Aspects. By Louis Gross, M.D., C.M.; Douglas Fellow in Pathology, McGill University, and Research Associate, Royal Victoria Hospital, Montreal; with an Introduction by Horst Oertel, Strathcona Professor of Pathology, McGill University, Montreal. With twenty-nine full page plates and six text illustrations. Price \$5.00. Paul B. Hoeber, New York.

This is an admirable work on a subject of unrivalled human interest. The blood supply to the walls of the heart is without doubt the most important organ circulation in the body; its pathology is the intimate source of manifold symptoms of disease and its cessation snaps the thread of life. The monograph represents a research chiefly upon the coronary circulation whose vessels, artificially injected, are depicted in numerous illustrations by photograph and radiograph in a way to bring credit on the printer. It may be pointed out that the charm of perspective in such pictures is enhanced by viewing them with one eye closed. A rich bibliography accompanies the text and valuable discussions clarify certain moot points in clinical pathology and explain the increasing hazard of pulmonary disease with age. It seems too bad that the author should have failed to mention J. B. MacCallum's masterly research on the Muscular Architecture and Growth of the Ventricles of the Heart (W. H. Welch's Jubilee Vol. 1900). Also, it seems strange that in any but a German bibliography credit should not be given to Martin and Sedgwick for having first overthrown Cohnheim's teaching of the lethal effects of coronary blockage, by tying a cannula in a coronary artery of a beating heart and registering the blood pressure therein, (Jl. of Physiology, Vol. iii, 1881). From a pedagogic standpoint it is unfortunate that the author did not add to his list of splendid illustrations a diagram of the heart in which might have been indicated the location of structures which to the ordinary clinician must seem phantasmic in their Latin names, e. g., annulus fibrosus, trabecula septomarginalis, etc., etc. The book under review is so fine that it, together with the monograph of MacCallum and a few others, might well furnish the basis of a treatise on the clinical physiology and pathology of the heart that every physician must find luminous for his daily problems. The researches of Gross throw light upon the moot question of the mode of attack of the microorganisms which cause endocarditis. He gives strong support to that view which holds that the valvular lesion is due to infective emboli which plug the capillaries at the bases of the valves, and discards the more popular belief that the germs are implanted on the surfaces of the valves from the blood currents within the cardiac cavities. It is shown that in the heart of the child the valves are preeminently vascular and easily subject at this period of life to embolic disorder. Hence, the known clinical danger of valvular infections in childhood; and powerful support is given to the position held by a few thinkers that cardiac disease, like tuberculosis, is in the great majority of cases contracted in early childhood. Gross shows that the heart in each cycle of life is coordinated to its tasks not only by the relative muscular mass of its right and left sides but by the richness of vascularity of its chamber walls. Before birth, and for a short time after, the right side of the heart has the more abundant blood supply; this relation quickly changes and with advancing years the vascular network in the right ventricle becomes relatively progressively attenuated until, in the aged, the supply of the blood to the right ventricle is inade-

quate to any extraordinary effort on the part of this chamber. Hence the special danger involved in the pneumonias of old people. Nature seems to have compensated in a peculiar way this obliteration of vascular paths in the right ventricle by anastomoses between the blood vessels of the overlying pad of fat and the coronary capillaries of muscle beneath. The "terminal" arteries, which are supposed to anatomically segregate the coronary supplies of blood to various districts, do not exist. Abundant anastomoses afford intercommunication between all parts of the coronary circulation.

H. S.

Applied Psychology for Nurses. By Mary F. Porter, A.B., Graduate Nurse; Teacher of Applied Psychology, Highland Hospital, Asheville, N. C. Octavo of 172 pages. W. B. Saunders Company, Philadelphia and London, 1921.

The greater part of this book consists in definitions and formal expositions on principles of psychology. It is quite complete in this regard, and defines such things as apperception, inorganic memory, abstract concepts, universals, etc.

Expositions are in some cases quite advanced for nurses. Thus we have sections entitled "Reaction Proportioned to Stimuli", "There Can Be No Neurosis Without a Psychosis", etc. In general the expositions follow the psychology of William James, though at times there appears a Freudian taint. It is surprising to find these two psychologies compounded into an Applied Psychology for Nurses.

After much exposition on psychological principles, the book takes up such matters as Training Perception, Training the Will, Self-correction, Concentration, etc. The author assumes that the nurse is deficient in the various attributes mentioned in the definitions, but that she can be redeemed through a rigorous course of self-culture.

On the whole the book is rather formal and didactic. The psychology seems too advanced for nurses and it is altogether too elaborate for bedside application. The book emphasizes a need, though it does not entirely fill it.

C. S. B.

The Medical Clinics of North America. Volume V, Number II (the Mayo Number, September, 1921). Octavo of 317 pages, 80 illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Published bi-monthly. Price, per clinic year: paper, \$12.00; cloth, \$16.00.

The Mayo Clinic number consists of a long list of interesting clinics containing a wealth of clinical and laboratory material. The subjects dealt with cover a wide scope. Dr. W. L. Benedict opens with a clinic on retinitis of acute nephritis, reporting six cases. This is followed by observations on the sphenopalatine ganglion syndrome of the sympathetic type, with a report of three cases. Clinical and surgical experience in diseases of the chest, with special reference to pneumothorax, is discussed by Drs. W. S. Lemon and Arlie R. Barnes. A valuable contribution on primary cancer of the lung from the roentgenologic viewpoint deserves commendation. Cardiospasm with a report of three hundred and one cases is ably presented by Drs. Henry S. Plummer and Porter P. Vinson. This is followed by a discussion of atypical pain with angina pectoris. Dr. George B. Eusterman presents two interesting post-operative cases and Dr. David M. Berkman discusses the preoperative management in cases of gastric retention. A safe method of removing sigmoidal polyps and high rectal polyps is demonstrated by Dr. Louis A. Buie. Interesting and up-to-date clinics dealing with metabolism are presented by Drs. Boothby, Sandiford, Rowntree and Wilder. The relation of focal infection to diseases of the urinary tract is discussed by Dr. H. C. Bumpus. A brief contribution on the treatment of dysmenorrhea by Drs. Leda J. Stacy and Edward G. Joseph follows. An interesting series of cases dealing chiefly with the arspenamin treatment is ably presented by Dr. John H. Stokes. Tardv paralysis of the ulnar nerve is considered by Dr. W. D. Sheldon and arteriosclerosis of the nervous

system is discussed by Dr. H. W. Woltman. Dr. Reginald Fitz presents three cases emphasizing the importance of careful history taking and thorough physical examination in ordinary diagnosis and treatment. A valuable clinic on hypersensitivity to food proteins is presented by Dr. Arthur H. Sanford. Echinococcus disease is discussed by Dr. T. B. Magath. The closing contribution by Dr. Edward C. Rosenow deals with the results of experimental studies on focal infection and elective localization.

J. L. M.

Principles of Medical Treatment. By George Cheever Shattuck, M.D., A.M., Assistant Professor of Tropical Medicine, Harvard Medical School; Formerly Assistant Visiting Physician, Massachusetts General Hospital. Fifth revised edition. Boston: W. M. Leonard, Inc., 1921.

It was with great pleasure that I reviewed "Principles of Medical Treatment", first because a former edition of the same book formed a basis for my own early medical training, and second, Dr. Shattuck is a personal friend and was chief of the medical service in which I worked in the war.

The present edition is much larger than any previous one, and has two new features, namely, a blank page opposite every printed one for the additional notes of the student, and contributions on tuberculosis, acute infectious diseases most common in childhood, influenza, diabetes mellitus, and serum treatment of pneumonia. These articles are by men who have done special work in their respective fields.

The title, "Principles of Medical Treatment", is particularly well chosen, as the principles of treatment in each disease are outlined, and unnecessary explanation is absent. In addition, the principles are very sound and are based upon years of trial by experienced clinicians in a well known medical center.

After the principles of medical treatment, there are four lists of drugs arranged according to their value as determined by use in medicine. The more valuable drugs receive special attention as regards indications, dose, administration, substitutes, etc. These are followed by the commonly useful drugs.

The last few pages are devoted to relative tables of weights and measures.

Dr. Shattuck's book is a distinct contribution to medical literature, particularly to the student and young practitioner whose mind may well be confused by the present voluminous medical publications. It is a fundamental book and worthy of the attention of the profession.

T. D. C.

The Surgical Clinics of North America (Issued serially, one number every other month), Volume I, Number 6 (The New York Number), 295 pages, including complete Index to Volume I and 122 illustrations. Per clinic year (February, 1921, to December, 1921). Paper, \$12.00 net; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

An agreeable, pleasant and readable number of the Surgical Clinics of North America is that of December, 1921, the New York number. In this issue, The Clinics lives up to its name, in that the contributions are nearly all the minutes of actual clinics. After reading one of them, the reader knows in detail exactly what to do in a given condition or emergency, and feels that he has gained experience, second only to that gained from actual attendance. In this respect, the Surgical Clinics differs from every other of the numerous surgical journals. The clinical side should always be made as vivid, and as similar to amphitheatre conditions as possible.

Four excellent cases, all of chest surgery, are presented by Lillienthal, than whom there are few better known chest surgeons. One case of pulmonary tuberculosis, in which he does the Sauerbruch collapse of the chest wall will be of particular interest to surgeons of this region.

Downes' results in using jejunostomy in very large, almost inoperable posterior gastric ulcers is

very impressive, and adds a new and simple method of treatment in a most formidable disease.

A similar procedure, though for an entirely different condition, is brought out in Erdman's cases of high enterostomy for relief of ileus complicating acute appendicitis. He shows clearly the simplest and best method of dealing with what would otherwise be a fatal complication.

Neuhof has a clinic of five good cases, all brain and cord surgery. The surgery of bone sarcoma and osteomyelitis makes up Bancroft's excellent contribution. Moorhead's traumatic clinic is of some interest. The other clinics, while of less general interest, may be of particular value to some readers.

G. B. P., Jr.

Diseases of the Skin. By Henry W. Stelwagon, M.D., Ph.D., with the assistance of Henry K. Gaskill, M.D., attending dermatologist to the Philadelphia General Hospital. Ninth edition cloth. Price, \$10, net. Pp. 1313, with 430 illustrations. Philadelphia: W. B. Saunders Company, 1921.

The great popularity of this text book is evidenced by the number of editions and is the last to receive the special attention of Dr. Stelwagon, who died while working on its revision. He had approved the text, however, and left numerous notes and memorandums which have been utilized to the best advantage by Dr. Gaskill in completing the work. Seventy-four new illustrations appear, as well as additional material on several dermatological subjects.

This work has always been noted for its wealth of bibliographic compilations and this feature has been emphasized in the present edition, thus rendering it perhaps the most valuable reference book on dermatology for the practitioner that is to be found today, although rather too large and complete to be of the greatest advantage to the medical student.

G. P. L.

Diagnostic and Therapeutic Technic, A Manual of Practical Procedures Employed in Diagnosis and Treatment. By Albert S. Morrow, A.B., M.D., F.A.C.S.; late Lieut.-Colonel, M.C., U.S.A.; Attending Surgeon to the City Hospital, and to St. Bartholomew's Hospital; Consulting Surgeon to the Nassau Hospital, Mineola, L. I. Third edition, entirely reset with 892 illustrations, mostly original. Philadelphia and London. W. B. Saunders Company, 1921. Price, cloth, \$8.00 net.

The value of Dr. Morrow's book on Diagnostic and Therapeutic Technic is already well known. The third volume has been revised and brought down to date in every respect. New material has been added and the latest word in regard to all diagnostic methods has been added. The book includes much of value in regard to treatment although the title does not suggest such a comprehensive volume. This work does much to enable the busy practitioner to keep up to date.

T. R. L.

The Allen (Starvation) Treatment of Diabetes: with a series of graduated diets. By Lewis Webb Hill, M.D., Junior Assistant Visiting Physician, Children's Hospital, Boston; Alumni Assistant in Pediatrics, Harvard Medical School, and Rena S. Eckman, Dietitian, Massachusetts General Hospital, Boston, 1911-1916. With an introduction by Richard C. Cabot, M.D. Fourth Edition. Boston, W. M. Leonard, Publisher, 1921.

This little volume is of such value to internist and diabetic patient that it is not surprising to see a fourth edition already published. The authors have wisely incorporated as in previous editions, a brief summary of the Allen treatment with case reports and other data sufficient to enable patients as well as physicians to keep diabetes under control. In addition to very excellent tables of food values and equivalents the little volume also contains some twenty-five pages of recipes for the

preparation of foods. The supreme value of the book, however, lies in its series of tables of daily diet lists which makes it so easy for one to increase the diet from day to day until the patient is on a satisfactory amount of food.

T. R. L.

Practical Medicine Series: Vols. II, 1920 and 1921: General Surgery. By Albert J. Oshner, Major, M. R. C., U. S. Army, Surgeon in Chief Augustina and St. Mary's of Nazareth Hospitals. Professor of Surgery of the Medical Department of the University of Illinois. 620 and 625 pages respectively. 175 and 49 illustrations, respectively. Chicago. The Year Book Publishers, 304 South Dearborn Street. Price per volume \$2.50.

These volumes are so nearly alike that what could be said of one might be true of the other. Neither volume has attempted to remodel the subject, but both are splendid and attractive additions thereto. Less emphasis is given to war surgery than in previous volumes, but more to the needs of civil life. The elimination of the treacherous remedies from local anesthetics and the substitution of novocain marks a long and important stride of advancement in that branch of surgery. The value of the books can scarcely be overestimated because they are devoted exclusively to recent surgery. They give every step of headway made in contemporary progress. All the material that is new which would be of practical value to the surgeon is gathered from its source of production and edited by a man of eminent authority.

L. J. W.

American Illustrated Medical Dictionary (Dorland).

A new and complete dictionary of terms used in medicine, surgery, dentistry, pharmacy, chemistry, veterinary science, nursing, biology and kindred branches; with new and elaborate tables. Eleventh Edition, revised and enlarged. Edited by W. A. Newman Dorland, M.D. Large octavo of 1229 pages, with 338 illustrations, 141 in colors. Containing over 1500 new terms. Philadelphia and London: W. B. Saunders Company, 1922. Flexible leather, \$7 net; thumb index, \$8 net.

The fact that a new edition (1922) of this reliable dictionary is on sale so soon after the 1920 printing is evidence of two things—the book's popularity and the author's desire to keep it strictly up with the profession's and the student's needs. It is satisfactory from every standpoint—size, convenience in handling, arrangement of text, paper, type and completeness of contents.

F. B. S.

NEW AND NONOFFICIAL REMEDIES.

During January the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

The Abbott Laboratories: Butyn.

G. W. Carnrick Co.: Solution Post-Pituitary.

Parke, Davis and Co.: Pituitrin "O".

During February the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Persson Laboratories: Bacillus Coli Antigen (No. 50)—Persson; Furunculosis Vaccine Mixed (No. 37)—Persson; Gonococcus Antigen (No. 47)—Persson; Staphylococcus Aureus Antigen (No. 49)—Persson; Streptococcus Antigen (No. 48)—Persson; Pneumonia Vaccine (No. 36)—Persson.

Powers-Weightman-Rosengarten Co.: Novarsenobenzol—Billon.

G. H. Sherman: Whooping Cough Vaccine—Sherman; Mixed Typhoid Vaccine—Sherman; Acne Staphylococcus Vaccine—Sherman.

Winthrop Chemical Co.: Alypin.

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Editorial Comment

DOES THE WELFARE OF SOCIETY JUSTIFY FURTHER ANIMAL EXPERIMENTATION?

Apart from the prejudiced few whose minds are closed to reason, and who represent the extremists' views of the issue involved, it may safely be assumed that the general public, in consideration of the extraordinary benefits which have accrued from biological research, will earnestly endorse this method of scientific endeavor whenever its principles and practice are questioned. The discriminating judgment of the people may be depended on to weigh calmly its visible triumphs against the unsupported calumnies heaped upon it by those who hide beneath a cloak of righteousness their real design—to undermine the universal respect and confidence manifested toward the medical profession. The right of society to protect itself transcends the specious argument that the brute creation is co-equal.

In recounting the stupendous achievements of modern medicine, which have potentially prolonged and rendered more wholesome the life of every civilized human being, conserved his vitality and immeasurably extended his field of usefulness, those unfamiliar with the vital problems still presenting may well inquire what further need exists for animal experimentation.

The redemption of half the world from tropical plagues as old as mankind; the discovery and development of anesthetics; the limitation or actual subjugation of such communicable diseases as typhoid fever and yellow fever; the establishment of aseptic surgery; the standardization of potent drugs; the elucidation of countless problems in physiology and the solution of others associated with arrested or perverted function of the ductless glands, all of these and more have crowned the efforts of tireless workers in many lands. But we have scarcely crossed the threshold. There are dark places still unexplored; there are elusive secrets in the natural history of many diseases still undiscovered. So long as cancer demands a toll of eighty thousand lives annually in the United States, and tuberculosis, twenty thousand; so long as influenza sweeps across the world in devastating pandemics through every generation and the minor plagues of measles, scarlet fever, infantile paralysis and whooping cough

bring desolation and dismay to mankind, it will be the duty and the privilege of scientific medicine, largely through animal research, to dedicate its best energies toward the emancipation of the race from preventable disease.

Coincident with this ideal comes the eradication of infectious disease in animals. Next only to human beings, the benefits resulting from experimental medicine have been shown in the added comfort, safety and longevity of our domestic animals. Texas fever, anthrax, septicemia, hog cholera, and glanders, once responsible for the heaviest losses, are now conquered. Many affections remain, however, and baffling problems in veterinary medicine must be solved, before the appalling loss in livestock is reduced. Throughout these investigations, the ethical sense of the observer may be relied upon to prevent the abuses so frequently paraded through anti-vivisection literature, while recognizing that "the humanity which would prevent human suffering is a deeper and truer humanity than the humanity which would save pain or death to animals."

J. W. A.

TITLES OF PAPERS FOR THE OCTOBER MEETING SHOULD BE SENT IN PROMPTLY TO DR. T. E. CARMODY, CHAIRMAN, COMMITTEE ON SCIENTIFIC WORK, METROPOLITAN BUILDING, DENVER.

THE ANTI-VIVISECTION MENACE.

Sympathy, combined with sense, is one of the highest human traits. Without sense, sympathy is very liable to degenerate into maudlin sentimentalism; and sentimentalism, if it be maudlin and ill-informed enough, can be very easily directed by designing persons toward unscrupulous ends.

In view of the fact—which any sincere inquirer can verify—that animal experimentation has contributed more than all other methods of investigation to the relief of both human and animal suffering and the prolongation of both human and animal life, the sympathy that protests against the properly conducted destruction of a frog or guinea pig for the further conquest of disease and death, is a sympathy wholly without sense. The campaign of misdirecting this uninformed sympathy against proper experimentation is already under way in Colorado. It is a campaign of unbelievable mendacity and ferocity, and is being directed against men of the highest attainments and the loftiest

motives. Those who are conducting it are actuated not by sympathy for animals but by malice toward men. The same experimentation that has led to the conquest of so many human diseases has led also to the conquest of many painful and horrible diseases of animals.

If you would rather see uncounted millions of babies choked to death by diphtheria than to let a humane and high-minded experimenter destroy a guinea pig, then vote for the law designed to prohibit such experimentation when you get the chance next fall. But if you regard of less importance the humane destruction of a few animals in a laboratory than the prevention and cure of all kinds of diseases and injuries among both animals and human beings; then vote against this law so deceptively designed to prohibit all the experimentation that makes such cure and prevention possible.—Emerson Page in the Delta County Tribune, Colo., March 17, 1922.

MENDELISM AND PHILANTHROPY.

A thoughtful consideration of the mendelian doctrine of heredity, which is now as securely established as is the darwinian theory of natural selection, leads one to look with serious misgivings upon many of the public measures designed to shield the inferior and ill-equipped from the natural consequences of their inferiority.

One of the most important conclusions to be drawn from the facts of mendelism is that the improvement which may be effected in the individual of inferior stock by improved education and living conditions does not equip that individual to contribute anything to posterity by heredity except the same inferior qualities that he himself inherited. Acquired qualities are not transmissible by heredity. Therefore measures designed to benefit those defective individuals who are the offspring of an inferior stock, are beneficial to the race only so far as they qualify these defective individuals to serve mankind during their own lifetime. The misdirected altruism which simply improves the lot of the inferior without, at the same time, placing restrictions upon the propagation of inferior stocks, merely encourages the disproportionate propagation of such stocks, and is, therefore, a very decided menace to the future excellence of the human race.

Indiscriminate mothers' pensions constitute a menace of this kind. They constitute a burden which must, in the form of taxation, be borne by the intelligent, the thrifty, and the prudent. Among the intelligent, the thrifty, and the prudent, such burdens restrict the birth rate. The very persons, therefore, among whom reproduction should be encouraged are deterred by mothers' pensions from adding children to their other burdens, while inferior and defective stocks that could, without detriment to the race, be sterilized, are encouraged to increase and multiply and fill the world.

Unreasonable restriction of the liberty of the

fit in order to shield from temptation the unfit, is another menace of the same kind. National police regulations designed to remove every temptation from those defectives who are incapable of withstanding any temptation, can have no other effect than that of augmenting the propagation of feeble-willed and feeble-minded individuals who, if unprotected from themselves by such regulations, would have perished of their own unfitness and so extinguished their own inferior stocks. Humanitarian considerations would suggest the advisability of protecting such individuals from themselves if such protection can be provided without undue restriction of the liberty of the fit, and can be accompanied by some regulation and restriction of reproduction among those who are so unfit as to need this protection.

Undue solicitude for the comfort and welfare of prison inmates, incorrigible moral defectives out of prison, inveterate paupers, wastrels, and drunkards—unless it is accompanied by a rigid restriction of reproduction—can only lead to the contamination of future generations with undesirable qualities by a very great number of inferior individuals whose undesirable qualities might better perish with them.

Measures of taxation which impose an undue and excessive burden upon the mentally superior, the efficient, the successful, and the self-sufficient in order to ameliorate the living conditions of the dull-witted, incompetent, inefficient, timid, and self-indulgent, can but augment the propagation of the unfit and restrain the reproduction of the fit. Since the growth of democracy has obliterated the demarcations of social class, intermarriage of the superior with the inferior is unrestrained. This leads to the extinction of superior qualities just in the proportion in which the inferior individuals numerically exceed the superior—and this proportion is very great. Really superior individuals comprise only three or four percent of the whole.

It has been proposed that such contamination of the better stocks by the inferior stocks be curtailed by forming a sort of natural aristocracy based upon public records of mental and physical tests and by creating a public sentiment that will make it as odious to marry beneath one's mental and physical rank as it now is to marry within close degrees of relationship. At present such proposals are merely tentative, but unless some such differentiation of classes can be made effective, there can be no preservation of the best qualities of the race for posterity except by an indifference to suffering among the inferior and defective that would be abhorrent to any normal man.

The only way to escape these conclusions is to repudiate mendelism—which would be difficult—and continue the policy of "letting her rip" which we have thus far pursued and which has led to the debasement of every great nation of antiquity and will, if we continue to pursue it, lead to the debasement of our own.

A. C. McC.

VITAMINS.

HARRY GAUSS, M.D., DENVER.

(Because of its bearing on the subject of animal research, and in the hope that it may reach the public's eye in Colorado, this exposition in popular vein of the accomplishments of scientists in certain disorders of nutrition is given editorial prominence.—Ed.)

On the eighteenth day of September in the year 1770, a British squadron composed of five men-of-war and two auxiliary ships hoisted their flags, set their sails to the wind and sailed from St. Helens, England, under the command of Lord Anson, to cruise southwesterly across the Atlantic, planning to reach the Pacific by encircling South America and from there on to harass Spanish influence; then to cross the Pacific and ultimately to capture Manila. This expedition was to have been augmented by another squadron which was to have sailed eastward, the two to have met near the Philippines, then to establish Britannia as the undisputed mistress of the seas. With pomp and ceremony Lord Anson set sail, a thousand hands he had on board and all the implements of naval warfare. Had this expedition been successful, South America might have been today an English speaking continent and the Spanish American war would never have been fought.

History tells us that four years later one lone ship, the "Centurion", limped back into port with less than fifty of the original crew. The Pacific they reached, but pestilence had overtaken them and well nigh destroyed them. It was not Spanish guns that drove them back. Scarcely had they reached the Straits of LeMaire when the dread spectre of scurvy made its appearance. Slowly but surely the crew was stricken and by April, 1771, there were few of the hands who were not in some degree afflicted with it, and forty were buried at sea; in the month of May nearly a hundred died, and in the month of June the death rate was increasing. The pestilence of the seas had overtaken them. This disease which attended long voyages so frequently and which was so particularly destructive, was a most perplexing problem, for scarcely any two persons had complaints exactly resembling each other and where there was found uniformity in the symptoms, the order of their appearance was totally different.

Insidious in its onset, it crept upon its victims with various manifestations. Commonly the gums became swollen and putrid and the teeth would fall out, large discolored spots appeared over the body, the legs became swollen, respiratory complications frequently set in; but above all an extreme lassitude overtook the victim so that he was incapable of any work and the least exertion caused terrible anguish. The disease likewise was attended by a strange dejection of spirits with shiverings, tremblings and a disposition to be seized with the most dreadful terrors on the slightest excitation. Men laid down in their hammocks and died.

The gallant band continued their course

around the Cape Horn, although the men were dying four and five a day and there were scarce enough to do watch duty. Finally the crew landed on a small island and remained there for four months. This terrible disease seemed to disappear as by magic after the men landed, with a rapidity that was marvelous and passed their understanding. Refreshed, they set sail again. But once again on the Pacific the pestilence broke out with renewed vigor and all but destroyed them. So hopeless did the situation appear to the historian of this ill-fated voyage that he believed the cure and prevention of the malady could not be effected by any management or by any remedies which might be made use of at sea. "Indeed," he continues, "when it has got to a certain head there are no other means in nature of relieving the sick but carrying them on shore or at least bringing them in the neighborhood of land."

Yet land itself did not cure scurvy. This pestilence helped to keep the Holylands under Turkish rule by invading the camps of the Crusaders. In the War of Independence there were over 30,000 cases of scurvy with about 400 deaths in the American camp. In the Civil War this disease was so rampant that a special sanitary commission was appointed by the federal government to investigate it. The subject was studied in all medical centers of the world; numerous theories were advanced but all of them lacked proof; and still men, women and children died of scurvy.

About the year 1882 a Japanese training ship, "Ruigo", with two hundred and seventy-six men on board, set out for a cruise of nine months. Like other prolonged naval voyagers they were overtaken by a pestilence of a nutritional disorder ("beri-beri" it was called this time), which differed in its symptoms from scurvy, although it was no less destructive. One hundred and sixty-nine Japanese sailors developed beri-beri and twenty-five died. But the medical inspector general of the Japanese navy had ideas of his own and, largely due to his counsel, the trip was repeated by another training ship, the "Tsukuba", only this time the ship's dietary had been radically changed, the most marked change being to reduce the quantity of rice and to include reasonable amounts of meat and milk. There were no deaths on this trip, and only fourteen cases of beri-beri, and every one of these men had, for reasons of his own, refused to accept the new diet. This is one of the most significant experiments ever conducted in the science of nutrition and its relationship to disease.

One more disease completes a triad of nutritional disorders, rickets, a disease which occurs commonly among children of the poorer classes.

Still the scientific men of the world pondered over this subject. From England, the United States, Japan, France and other countries came reports of scientific labors, and gradually light began to shine where darkness had dominated. The principles of nutrition were being evolved and, as in all great mysteries when once solved, the fundamental principles

are now found to be so simple that they make us blush at our ignorance. A balanced diet must contain a certain ratio of fats, carbohydrates, and proteins totalling a certain number of calories, in addition to a certain amount of mineral salts, fluids and, finally, the vitamins. The men of Lord Anson's crew died because they lacked vitamins in their food. Scientific men call this particular vitamin "water soluble C". The children of a certain foundling home of New York City lacked "water soluble C" vitamin when scurvy broke out in that institution in 1914. Orange juice cured the children, orange juice would have saved the men of Lord Anson's crew. Orange juice contains "water soluble C" vitamin. The sailors of the Japanese boat "Ruigo" died because their polished rice contained practically no "water soluble A" vitamin and when fresh milk was given to the sick sailors they rapidly recovered. Milk is rich in all the known vitamins. Children who develop rickets, and this disease generally occurs among the poorer classes, do so because they are deprived of "fat soluble A" vitamin. Fresh butter, eggs and milk contain "fat soluble A" vitamin. Under a generous diet of these food stuffs, the disease subsides.

It is a far cry from the thousands of soldiers who died in prison camps during the Civil War because of scurvy to a discussion of white rats, yet white rats in the hands of scientific men have been the agency by which these horrors of scurvy have been made impossible or at least improbable of repetition. Professor Hopkins of Cambridge first demonstrated that rats grow at their normal rate if given whole milk, whereas, if given the constituents of milk in dry form, they remain stunted, dwarfed and stupid, although allowed an ample supply of water. Something is present in fresh whole milk that is essential to growth and development and that is destroyed when milk is sterilized too well or separated into its chemically pure constituents. This something was called by Professor Hopkins "accessory food factors", but is now called vitamins.

The rat and the guinea pig have been indispensable in the study of nutrition, especially in the consideration of vitamins, because these observations are significant only when made upon a growing animal. Guinea pigs are easy to handle and they multiply rapidly. They usually live not more than three years, and two hundred eighty days suffice to complete the entire period from growth to maturity. A period of three years in these animals corresponds to about sixty years in man. Because of these facts, they lend themselves splendidly for study in nutrition and in the hands of scientific men have given some of the results which today comprise the science of nutrition.

The rat and the guinea pig must be kept available to science in the future because the subject of vitamins is by no means closed and much work yet remains to be done. Because these animals have been available in the past for experimental study, much good has been accomplished for mankind. Certain terrible nu-

tritional disorders which claimed many thousands of victims in the past, often assuming the nature of a plague, will never again afflict humanity. The old terror of the seas, the calamity of the sailor, the horror of prison camps and armies, the despair of foundling homes—the pestilential scurvy—has been banished forever. To suggest that a cure for beri-beri, pellagra or rickets may be facilitated by some observations on guinea pigs is no absurdity nor exaggeration.

STATE BOARD OF HEALTH NOTES.

"His Acts Being Seven Ages."

The First Age:

"At first the infant mewling and puking in his nurse's arms." Who is this new citizen that has made his entrance on the stage in Colorado? Who are his ancestors? Was he first, second, third or other? Was he single, twin or triplet? Was his mother given due care during his prenatal existence? Was she well taken care of during the ordeal of parturition? These and many more questions are of interest to the state as well as to the infant. Is the milk that he is frequently compelled to use properly guarded in regard to cleanliness as well as disease? Are we sure that it is not a carrier of typhoid germs or tubercle bacilli? Is it free from the germs of scarlet fever, septic sore throat or the Klebs-Löffler bacillus? Lastly, has the law requiring the birth to be registered been complied with?

These are some of the benefits that accrue to the fortunate child who has his birth registered.

The place of birth—To prove citizenship, to prove residence, to acquire a legal settlement.

Time of birth—To prove age, to obtain admission to school, to establish the right to go to work, to prove liability for military service, to establish the right to vote, to obtain pensions.

Parentage—To prove legitimacy, to inherit property, to obtain settlement of insurance, to establish citizenship.

The death rate of infants per thousand births is also a good index of the efficiency of health work in a given community.

Should the child aspire to the office of representative in the National Congress, he has to be of certain age; or maybe he wants to be President, then he must be of legal age to make the effort.

The U. S. government is at present making a test of our registration to see if we are entitled to enter that charmed circle of states that are getting ninety percent registration. We are sure that we are running over twenty-one per thousand according to the census of 1920. In 1910 we were getting about thirteen per thousand. This notable increase has been brought about by the work of the State Board of Health and its officers, supplemented by work of various organized bodies, such as the Parent-Teachers Association, Local Boards of Health, and the efficient work of the local registrars. Many of

the doctors are conscientiously scrupulous to see that all their births are registered.

Certificate of Birth to Be Filed.

"That it shall be the duty of the attending physician or midwife to file a certificate of birth, properly and completely filled out, giving all the particulars required by this act, with the local registrar of the district in which the birth occurred, within ten days after date of birth. And if there be no attending physician or midwife, then it shall be the duty of the father or mother of the child, householder or owner of the premises, manager or superintendent of public or private institution in which the birth occurred, to notify the local registrar within ten days of the fact of such birth having occurred. It shall then be the duty of the local registrar to secure the necessary information, and signature to make a proper certificate of birth. (L. '07 p. 244 sec. 13; R. S. '08 sec. 383).

Penalties for Failure to Comply With Requirements.

"That any physician or midwife who was in medical attendance upon a case of confinement or any other person charged with the responsibility for reporting births, in the order named in this act who shall refuse or neglect to file a proper certificate of birth with the local registrar within the time required by this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than five dollars nor more than fifty dollars. (L. '07, p. 249, sec. 22; R. S. '08, sec. 393).

J. W. M.

Original Articles

THE ANATOMICAL AND FUNCTIONAL DIFFERENCES OF THE GERM AND THE SOMATIC CELL.*

GEORGE A. BOYD, M.D., COLORADO SPRINGS.

The object of this paper is to bring to your attention the changes the germ cells undergo in their transformation into spermatozoa and ova, and to point out the determining effect of these changes upon the sex of the offspring and upon the somatic cells of each sex; also to point out the rôle played by the chromomere, the unit structure of the chromatin thread in the transmission of hereditary characteristics, their genetic persistence in the somatic cell, then their partial elimination and redistribution in the germ cell and the possibility of affecting, through specific proteolytic lysins, the individual chromomeres, thus producing defects in definite portions of the body which defects become hereditary.

Much that is recorded must be only a brief summary of the conclusions of various workers in the biologic field, but the appended bibliog-

raphy will give you the sources of my information. To gain a starting point and to refresh your memories, a brief account of the process of cell division coupled with a more detailed report of Wodsdalek's work on "Studies on the Cells of Cattle With Special Reference to Spermatogenesis, Oogonia and Sex Determination" (Biological Bulletin, May, 1920, XXXVIII, 290) is given.

The drawings used in this paper were made for me by Dr. G. W. Bancroft from Wodsdalek's plates. His artistic ability speaks for itself. He has my gratitude. The plates used in the printed paper are made from Wodsdalek's plates by permission of the editor, Frank R. Lillie. The illustrations of cell division are taken from Wilson's work on "The Cell in Development and Inheritance", second edition, 1911, MacMillan Company, pages 66 and 67.

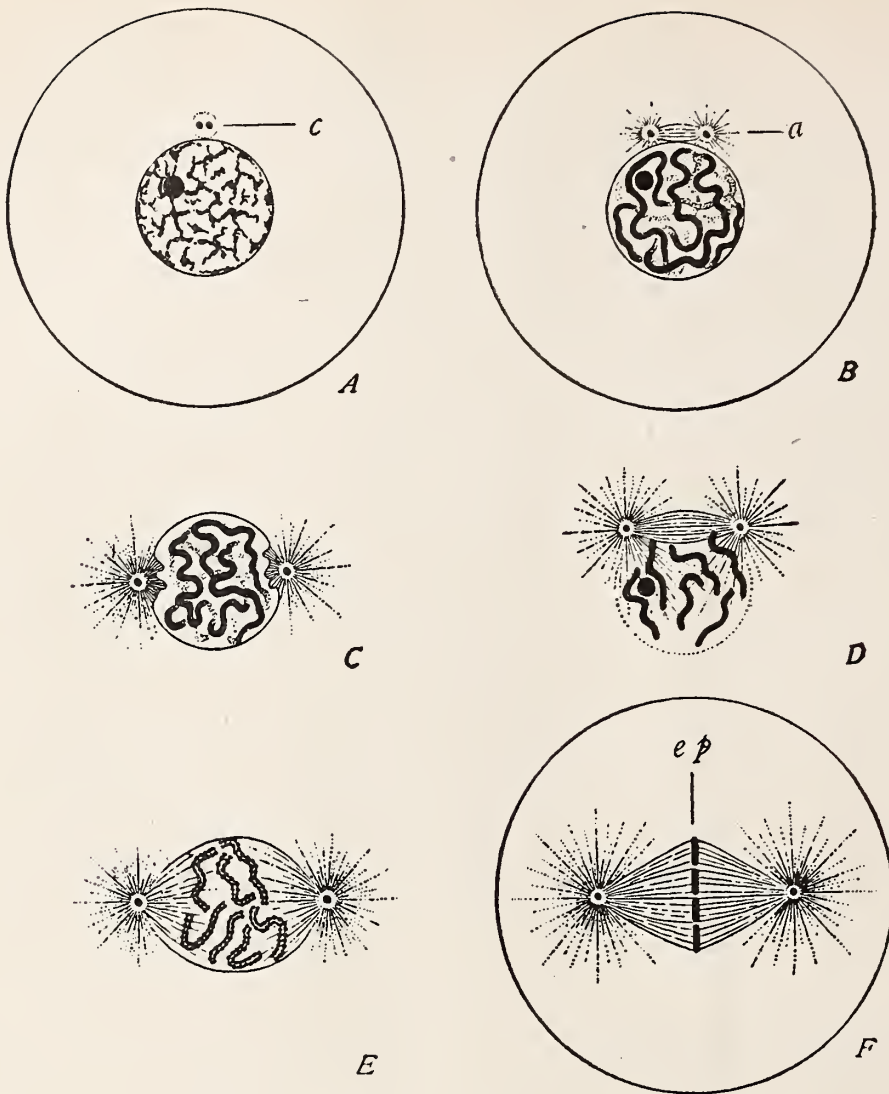
First, the chromatin of the vesicular nucleus loses its net-like arrangement and forms a definite number of intensely basic staining bodies named chromosomes. The nuclear membrane disappears and the chromosomes lie free in the cell. (Figures A, B, C, D).

Second, parallel with these changes the achromatic spindle (Figures C, D, E, F) appears by the formation of two centers of radiation fibers (Fig. C) at the site of the nucleus. The spindle is formed by those radiating fibers that meet between the two radiating centers (Figs. E, F). With the chromatin threads and nuclear spindle formed, the actual division of the cells begins (Fig. E) by each of the chromatin threads splitting lengthwise. This is accomplished by each chromomere of the chromatin thread dividing into two equal halves by fission, so that each new chromatin thread acquires exactly the same number of chromomeres in exactly the same relative positions, giving rise to chromatin threads of the same shape and contour of the parent chromatin thread. (Wilson, page 66, Fig. E.)

One of each pair of the new chromatin threads (Figs. G, H) arranges itself on opposite sides of the equator of the nuclear spindle and passes to the corresponding pole (Fig. I) so that the same number and size of chromosomes form the nucleus of the daughter cells. The entire cell now divides (Fig. J). This type of cell division characterizes the reproduction of all somatic cells. This type of cell division can evolve one complete individual but is incapable of initiating a new one. It requires the union of two sex cells for this purpose.

Wodsdalek's work describes the changes the embryonic somatic cells of the pig, horse and cow undergo in the production of the sex cells, the spermatozoa and ova and at the same time reveals the source of the equal distribution of the sexes. My report is taken from his studies in the cells of cattle. In the development of the spermatozoa from the spermatogonial cells of the testicle of the bull fundamental and deeply significant transformations take place. In the spermatogonial cell from which the spermatozoa are developed, there are thirty-seven chromo-

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

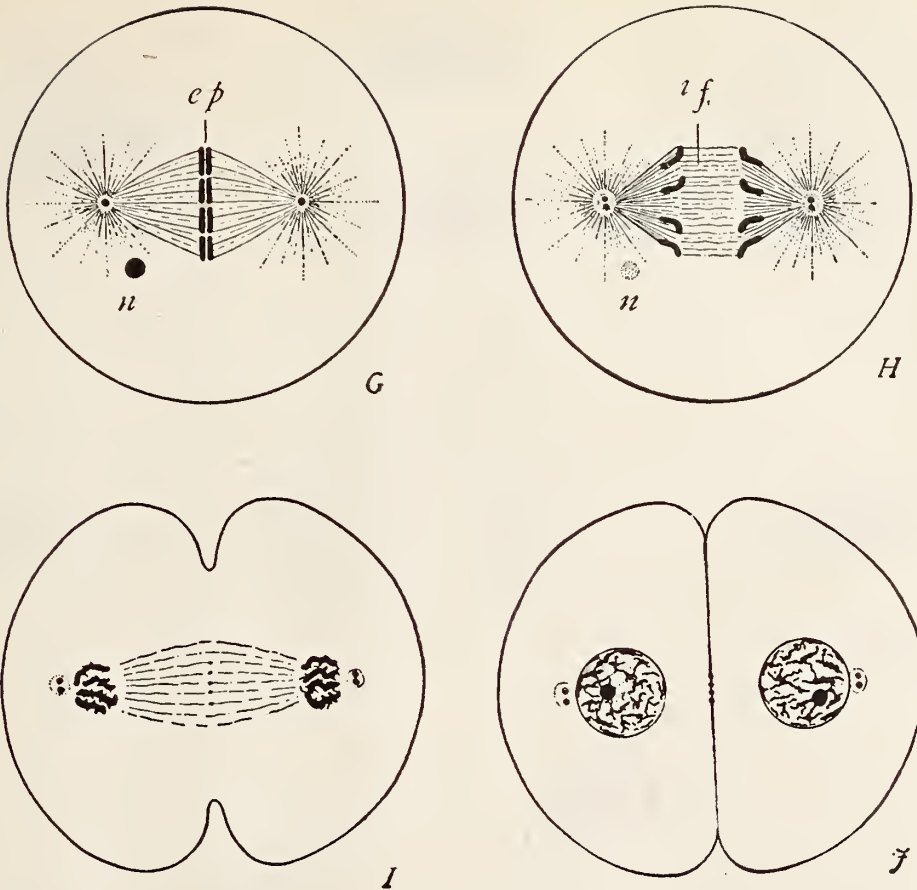


somes, thirty-six somatic and one large sex chromosome (plate 1, fig. 1).

For two generations the usual form of cell division takes place (fig. 2), each somatic and sex chromosome dividing and passing to the daughter nuclei. Before the third division, the thirty-six somatic chromosomes pair, forming eighteen double chromosomes, with one single sex chromosome (fig. 3) and in the third division the eighteen somatic chromosomes divide lengthwise sending eighteen chromosomes to each nucleus, while the sex chromosome, without dividing, passes to one pole, thus leaving one of the daughter cells without a sex chromosome. (Fig. 4) Two different types of cells are thus produced, one with a sex chromosome, one without. The new nuclei of these two different cells do not pass through a resting stage, that is, do not form a nucleus where the individual chromosomes pass out of sight and reform as in other cells, but without losing their identity the eighteen somatic chromosomes again pair, forming nine double chromosomes, then in the cell with the sex chromosome the nine somatic and the sex chromosome divide producing two cells, each with a sex chromosome and nine double chromosomes (figs. 5, 6, 7). These form the

spermatozoa with the sex chromosome. The cell without the sex chromosome undergoes the same type of division producing two spermatozoa without the sex chromosome. (Figs. 8, 9, 10).

The development of ova from the oogonial cells of the ovary present changes of equal importance. In the oogonial cells of the cow, there are thirty-eight chromosomes, thirty-six ordinary, the same as in the bull and two sex chromosomes (fig. 11). After an unknown series of generations of oogonial cells, the same type of heterotypical nuclear division begins as in the spermatogonial cells, with these differences: In the first division the thirty-eight chromosomes form nineteen double chromosomes which divide, forming two nuclei of eighteen somatic and one sex chromosome each. One of these nuclei is expelled from the cell as the first polar body and the cytoplasm of the cell does not divide. The remaining nucleus, without forming the resting stage, doubles only its somatic chromosomes and these with the one single sex chromosome divide, producing two nuclei each with nine somatic and one sex chromosome, then one of these nuclei is expelled from the cell as the second polar body leaving



Explanation of figures taken from Wilson's "The Cell in Development and Inheritance", Figures 25 and 26.

A. Resting cell with reticular nucleus and true nucleolus. (In cow, pig and horse, the nucleolus is known to be the sex chromosome. G. A. B.)

B. Early prophase; the chromatin forming a continuous spireme, nucleolus (sex chromosome) still present; the amphiaster (a).

C. D. Two different types of later prophase. C. Disappearance of the primary spindle, divergence of the centrosomes to opposite poles of the nucleus (examples, some plant-cells, cleavage-stages of many eggs). D. Persistence of the primary spindle (to form in some cases the "central spindle"), fading of the nuclear membrane, ingrowth of the astral rays, segmentation of the spireme-thread to form the chromosomes (examples, epidermal cells of salamander, formation of the polar bodies).

E. Later prophase of type C; fading of the nuclear membrane at the poles, formation of a new spindle inside the nucleus; precocious splitting of the chromosomes.

F. The mitotic figure established; e. p. the equatorial plate of chromosomes.

G. Metaphase; splitting of the chromosomes. (e. p.). n. The cast-off nucleolus. (The sex chromosome in advance migrating to the pole. G. A. B.)

H. Anaphase; the daughter-chromosomes diverging, between them the interzonal-fibers (i. f.), or central spindle; centrosomes already doubled in anticipation of the ensuing division.

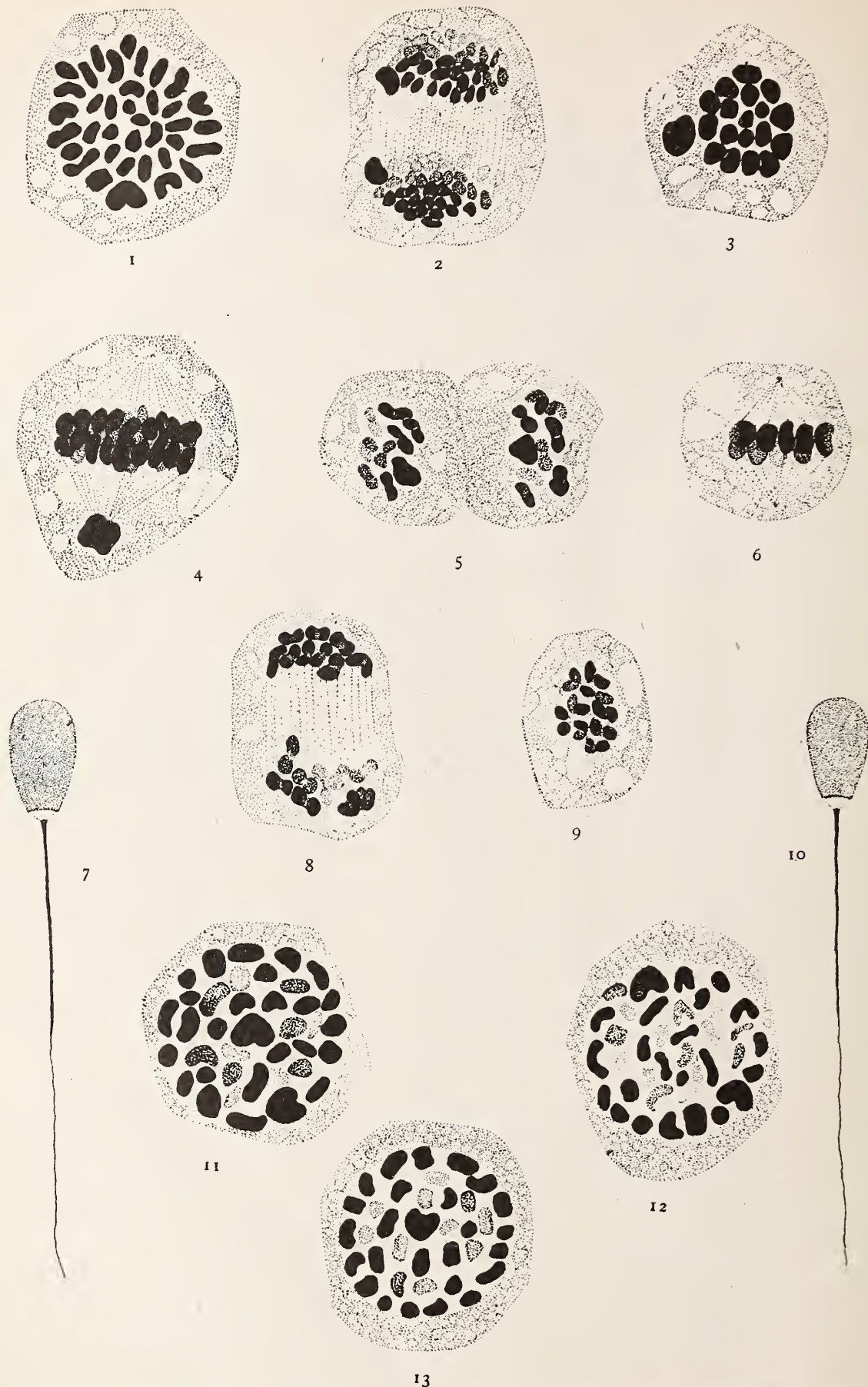
I. Late anaphase or telophase, showing division of the cell-body, mid-body at the equator of the spindle and beginning reconstruction of the daughter-nuclei.

J. Division completed.

one ovum with one sex chromosome. As a result of the two divisions, the first division excludes either one sex chromosome or one-half each of the two. In the first instance, as will presently be seen, the paternal or maternal sex characteristics are excluded, in the second, the paternal and maternal sex characteristics are mingled. The same may be said of the somatic chromosomes depending upon whether, after doubling the chromosomes, the division following separated the two parts of the double chromosome or divided longitudinally, excluding a maternal or paternal or carrying half each to the new nuclei. In the second and final division, one-half of the remaining half of chromatin remains as the nucleus of the completed ovum, that is one-fourth the amount of chromatin and the full amount of cytoplasm. Both

ova and spermatozoa carry one-half the number of somatic chromosomes since the nine are double. Every ovum carries one sex chromosome, one-half the spermatozoa carry one sex chromosome. The dimorphism of the spermatozoa is discernable under the microscope as shown in figures 7-10.

As a result of these changes we have two half nuclei and one cell (since the spermatozoon is nearly stripped of cytoplasm), neither of which is capable of initiating further division but by being brought near each other in the cytoplasm of the ovum initiate and complete an almost infinite number of generations and differentiations resulting in the adult. Wodsedalek found that when a spermatozoon with a sex chromosome unites with an ovum all succeeding generations of the somatic cells contain the two sex



Explanation of Cuts Selected From Plates of Wodsedalek. Plate I.
 (Biological Bulletin, XXXVIII, No. 5, pp. 308-316, 1920.)

No. 1. Polar view of metaphase division in a spermatogonial cell showing thirty-six ordinary chromosomes and one sex chromosome.
 No. 2. Late anaphase of division of spermatogonial cell.

nial cell showing division of all the chromosomes including a large sex chromosome.

No. 3. Polar view of metaphase stage of primary spermatocyte showing eighteen bivalent chromosomes and the sex chromosome which is usually at periphery of cell.

No. 4. Metaphase stage of division of primary spermatocyte showing the passing of the sex chromosome to one pole in advance of the other chromosomes.

No. 5. Division stage of secondary spermatocyte with the sex chromosome showing division of all the chromosomes including the sex chromosome, giving rise to two spermatids each of which contains the sex chromosome. When division of cell is complete each of the nine bivalent chromosomes splits into two so that there are eighteen ordinary and one sex chromosome in each spermatozoon developed from this type of secondary spermatocyte (No. 7). This spermatozoon uniting with an ovum always produces a female.

No. 6. Division of secondary spermatocyte without sex chromosome.

No. 7. Spermatozoon with sex chromosome.

Nos. 8 and 9. Show the bivalent chromosomes splitting into eighteen ordinary chromosomes, without any sex chromosomes. All generations of these spermatids develop spermatozoa without sex chromosomes and their union with ova produce males.

No. 10. Spermatozoon without sex chromosome.

No. 11. Oogonial cell showing thirty-six ordinary and two sex chromosomes. After reduction and formation of the polar bodies each ovum evolved from this cell contains nine bivalent or eighteen ordinary chromosomes and one sex chromosome. Its union with a spermatozoon having a sex chromosome, gives rise to a female, and all somatic cells of the female contain two sex chromosomes, one from the spermatozoon and one from the ovum.

No. 12. Liver cell from female fetus of calf, showing two sex chromosomes.

No. 13. Liver cell from male fetus of calf, showing the one sex chromosome.

chromosomes and the offspring is a female (fig. 12), the liver cells of a female fetus showing the thirty-six somatic and two sex chromosomes. The union of the spermatozoon having no sex chromosome with the ovum produces a male with thirty-six somatic and one sex chromosomes in all somatic cells (fig. 13, liver cell of male fetus). The cells of the brain, lung, liver, wolffian body and intestine were examined in hundreds of different specimens. The genetic persistence of the sex chromosome and, therefore, the sex chromomeres of which it is made up is thus established. The source of the variations of hereditary sex characteristics is strongly suggested by the extrusion of all sex chromatin from one spermatozoon and the extrusion of three-fourths and the probable mingling of the remaining one-fourth in one-eighth paternal and one-eighth maternal moieties. Much light has been thrown upon the question of the part sex plays in heredity by following the history of these two complementary half nuclei represented in sperm and egg cell.

If the paternal and maternal sex chromosomes persist in genetic continuity through all somatic cells and are redistributed or fused in the reduction transformation of the germ cells, does not this reduction of somatic chromosomes bear a correlative relation to the transmission of bodily structure?

The evidence that they do is very conclusive.

In 1881, Mark (Wilson page 204) demonstrated that the two germ nuclei of the cell do not fuse but become opposed and thus persist as two half nuclei in the somatic cells. Van Benedin in 1883 (Loc. cit. from Smith Biological Bulletin, Oct., 1919, xxxvii, 256) demonstrated the same thing in the ascaris Hacker (Die Eibildung bei Cyclops und Canthocamotus. Zool. Jahrb., Bd. V. 1892), and Ruckert, J., in 1895, (Ueber das Selbstandigbleiben der vaterlichen und mütterlichen Kernsubstanz während der ersten Entwicklung des befruchteten Cyclops-Eies. Archiv. für mikr. Anat. 45) found the same in the nuclei of cyclops up to the late blastula stage. In 1904 Moenckhaus described the independence of the maternal and paternal groups of chromosomes in the hybrids produced by crossing the eggs of fundulus with menidia sperm where the sperm and egg chromosomes were sufficiently different to make identification easy. (Loc. cit. from Smith, Biological Bulletin, Vol. 37, Oct., 1919, page 258). Smith (Biological Bulletin, Vol. 37, Oct., 1919, page 246) reports work on "The Individuality of the Germ Nuclei During Cleavage of the Egg of *Cryptobranchus Allogeniensis*" in which he reviews the history of our knowledge of this subject. While it is not demonstrated in all bisexual organisms that the germ nuclei segregate into distinct groups their individual chromosomes, it is demonstrated that the paternal and maternal chromosomes do retain their genetic individuality and more than this that they exist in homologous pairs—that the paternal somatic chromosome is matched by a similar maternal chromosome. In the production of the formation in germ cells this arrangement is broken up in the reduction division by pairing or union of the homologous chromosomes so that, in the division following, the chromosomes of paternal origin may pass into the group of maternal origin taking the place of the maternal homologue (and vice versa with the maternal group), thus forming new germ nuclei with the hereditary bearers (chromosomes) of the paternal and maternal origin. This transmits to the offspring the mingled hereditary characteristics of both parents. In this orderly substitution of one homologous chromosome of paternal origin for its homologue of maternal origin, stability with variation is secured.

The chromosomes are bearers of groups of bodily structures while the chromomeres represent more particular, restricted areas. In some instances the location of these chromomeres in the chromosome has been made out. Morgan (Princeton University press, 1916) in the fruit fly has located the source of one-hundred and twenty-five changes in the wings, eyes and various other parts of the body in certain areas of the eight chromosomes, producing a chromomeric map showing the location in each chromatin thread of the chromomeres that effect these changes. Guyer and Smith of the Zoological Laboratory of the University of Wisconsin (The Journal of Experimental Zoology, Aug., 1920, xxxi, 171) in their second paper on "Studies on Cytolysins, Transmission of Induced Eye De-

fects" have made some far reaching discoveries in the possibility of affecting individual groups of chromomeres through the action of specific proteolytic lysins. They injected chickens intraperitoneally and intravenously with pulped rabbit eye lenses in normal salt solution once a week for four injections, waited ten days, then injected the sensitized chicken serum into the marginal vein of an albino rabbit ten days pregnant. Injections were repeated every second or third day for three injections. Three defective lenses were found in the first experiment in a litter of seven rabbits. Control rabbits injected with normal chicken serum gave no defective eyed offspring. Further experiments succeeded in producing more defective eyed offsprings. The surprise came when these defective eyed rabbits were interbred, the offspring showing the same defect in increasing numbers and severity. They say, "perhaps the most interesting and important result of our experiments is the establishment of the fact that the defects once secured may be transmitted to subsequent generations through breeding". The defect has been carried through six generations and is transmitted through either male or female. "The one central phenomenon of all the eye defects is the opacity of the lens, together with its diminution in size. The abnormal condition has the general characteristics of a mendelian recession."

Among their conclusions, they state that "the thing that interests us most is that a certain effect has been produced and what is of greater importance that once established the condition may be transmitted from generation to generation. It is not entirely clear as to whether the result should be reckoned primarily as an example of the inheritance of a somatic modification, that is, a change produced in the lens of the uterine young, which in turn has induced a change in the lens-producing constituents in the germ cells of these young, or as simultaneous changes in the eyes and germ cells of the young." In either case the inference is that there is some constitutional identity between the substance of the mature organ and its maternal antecedents in the germ cell. "Another alternative is, possibly, that the degenerating eyes are themselves directly or indirectly originating antibodies or other chemical substances in the blood serum of their bearers which in turn affect the germ cells."

"If this second alternative is true, then there opens up a wide field of possibilities as to the influence of various parts of a body on the antecedents of such parts in the germ cells born by that body. For such a condition would afford a ready means of modifying germinal factors by changes in the correlative organs of the parent, the blood stream of any organism with blood being the medium through which the influence is conveyed from the paternal organ to the germ."

Conclusions.

1. The chief anatomical difference between the germ and somatic cells, is the number of chromatin threads and their ancestral antecedents. The fertilized organ is the product of

the united complementary halves of the germ cells. Hence comes the sum of the hereditary possibilities of these two.

2. The chief physiological difference between the germ and somatic cell is that the germ cell is incapable of initiating cell division.

3. The union of the germ cells or the apposition of their nuclei initiates a series of cell divisions in which from the first cleavage division a precise and predetermined relation exists between each generation and the adult part to which it gives rise.

4. This predetermined control is located in the chromomeres of the chromatin threads.

5. The individual chromomeres are relatively as unlike as the parts of the body to which they give rise.

6. As there is a limit to the number and unlikenesses of the chromomeres in the germ cell so there is a limit to number and parts of the organism to which they give rise. The measure of this limit is the adult organism.

7. When this limitation is reached, sex is nature's provision for producing a new individual and consists in first coupling the paternal and maternal homologous somatic chromosomes and then redistributing and reducing them so that the germ nucleus carries one-half the number of somatic chromosomes of mixed paternal and maternal origin. In the reduction, one-half the sperm cell loses its sex chromosome and the egg cell one of its two. Union of a sperm cell having a sex chromosome with the egg produces a female, and without the sex chromosome, a male.

8. It is possible to alter or destroy the individual chromomeres of sex cells without destroying the body, but not without producing defects.

9. Guyer and Smith have so altered the chromomeres determining the development of the rabbit's lens, by cell cytotoxins produced by injecting chickens with pulped rabbit lenses and injecting the sensitized chickens' serum into the vein of a rabbit ten days pregnant.

10. This change in the chromomere in the offspring of the defective eyed rabbits thus produced, is reflected in similar changes in the lenses of successive generations which seem to follow the mendelian law.

I wish to acknowledge my obligation to Frank R. Lillie, editor of the *Biological Bulletin*, for permission to copy the Wodsdalek cuts and to Ross G. Harrison, managing editor of *The Journal of Experimental Zoology*, for allowing me the privilege of using the plates from Guyer and Smith's article and to the Wistar Institute of Anatomy and Biology for packing and shipping same to me.

The appended bibliography includes the more important works and papers consulted in preparation of this paper.

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TRANSMISSION OF INDUCED EYE-DEFECTS

M. F. GUYER AND E. A. SMITH

(Reproduced by Permission of the Journal of Experimental Zoology.)



1



6A2



3A1



6A4



4A1



10A1



4A5



10A2



4B1



10A3



6A1



10A4

(Explanation on back of this page.)

EXPLANATION OF FIGURES IN COLORED PLATE

Various types of the defective eyes compared with a pair of normal eyes. The numerals refer to the pedigree number of the individual. The eyes are drawn approximately to scale; those of the 10A series are from individuals which were not yet mature. The bluish or silvery cast of many of the abnormal eyes is not due to pigment, but to opacity of the lens, coupled in some instances, probably, with deficiency of the retinal blood-vessels.

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DISCUSSION.

Philip Hillkowitz, Denver: We are greatly indebted to Dr. Boyd for presenting a strictly scientific contribution to our program. As physicians, we are apt to narrow our aims to the practical and the utilitarian rather than the theoretical, which after all is the basis of our scientific progress.

None of the practical applications in medicine would have been possible without the work of the scientists who labor purely for the love of finding the truth.

The subject matter of Dr. Boyd's paper may at first sight seem to have no practical bearing, yet it is full of promise. It may throw light on the pathogenesis of teratomas, those tumors consisting of tissues derived from the several germ layers. The study of the ultimate structure of the germ cell has been utilized to explain new angles in the mystery of natural immunity.

W. W. Grant, Denver: I do not think it is fair to let a subject of this kind go by default, even with the lucid exposition which has been made of the germ cells. The truth is it is not fair not to mention the name of Gregor Mendel, who is the discoverer of a new biological system that is now accepted by the biological world. Mendel is the one Dr. Spivak alluded to before lunch, when he spoke of his discovery, and it was not known to the world until thirty years after his death, when his book was rediscovered by Hugo De Vries, and was translated into English by Professor Bateman of Cambridge in 1900 or 1901, and not until then did the world know of this great work in which he established the fact of the independence of the germ cells by thousands of experiments on vegetables, largely, commencing with the sweet pea in his garden. He was known to be a learned man, a priest, who devoted a large part of his life to scientific work. He showed that while their union was absolutely necessary to conception, yet the offspring was never a compromise between the parents, but in each quality it was one or the other, and he carried those out in many ways, as to the color of flowers, grains, peas, etc., in which he established the rule of three to one, and that in breeding pure white with black that one out of three would be white and the others black, until he firmly established this unvarying law of three to one, black being dominant, white recessive characters. It was Mendel who did this, and he estab-

lished what is conceded to be a new biological principle, and the first and the most important of its kind ever established.

R. T. Frank, Denver: Dr. Boyd's paper is an interesting one, and I think it brings before you a fact which, in medicine, is well known. There are certain types of diseases which are explainable by the Mendel theory. What Dr. Boyd has said of the chromosome supplies a physical basis which has been previously lacking in the Mendelian theory. In other words, if all the further work is concordant it will make the theory a fact. This line of experiments on the rabbit simply produces a chromosome effect, which is transmissible. From that point of view it is extremely important in explaining hereditary disease like hemophilia, with which you are familiar, so that I need not enter into further detail.

Dr. Boyd (closing): The practical application of this paper depends entirely upon your knowledge of the facts with which it deals. Dr. Grant is well mixed on the application of the Mendelian law, and I have no time to get him straightened out just now. Those of you who are interested ought to look up the somatic cell and its old elementary function of reproduction. It is a wonderful field of study, and the more time you give to it the more interesting will be every pathological structure you see.

ON THE COINCIDENCE OF GALL-STONES AND KIDNEY-STONES IN THE SAME PATIENT.*

LEONARD FREEMAN, M.D., DENVER.

Through an article by Lukas' in the *Archiv für Klinische Chirurgie*, my attention recently was called to the curious fact that gall-stones and kidney-stones rarely are found together in the same individual, as evidenced by the remarkably few instances reported in medical literature. Upon reviewing my own experience during thirty-five years, I can recall but one such case, which, owing to its rarity, seems worthy of record. Dr. S. B. Childs informs me that, in his extensive work with the x-ray, he also has encountered but one case, while Dr. J. N. Hall, in his vast experience, has seen none.

Case History. A woman, between fifty-five and sixty years of age, had suffered pain in the right side for several years, felt sometimes near McBurney's point, occasionally over the ilium, and often in the neighborhood of the kidney. There were also abdominal tenderness and an irritable bladder, with pus and colon bacilli in the urine. A radiogram, taken by Dr. Childs, revealed a stone the size of the end of a finger in the pelvis of the right kidney.

On November 19, 1912, the nephritic calculus was removed through a posterior incision and found to be of the uric-acid variety. Owing to the marked abdominal symptoms, a "gridiron" opening also was made into the right iliac fossa, through which an obliterated appendix was excised and stones discovered in the gallbladder. These were taken out and drainage instituted through a buttonhole opening under the costal margin. They were twelve in number, the largest being the size of a small hazel-nut. The patient made an uneventful recovery.

Why should kidney-stones and gall-stones not

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exist together more frequently, when we know that their causes are quite similar, and that certain anatomical conditions predisposing to renal lithiasis also favor lithiasis of the gallbladder?

For the sake of clarity let us consider briefly the recognized factors leading to the deposit of calculi in general. These are stasis, infection, and often an appropriate "diathesis", by which is meant the presence of certain materials, such as cholesterin or uric acid, under conditions favorable for their precipitation.

Stasis seems to be the primary and most important thing, and when it occurs in any of the excretory or secretory organs, ducts, tubes or passages, it leads to pathologic changes, often accompanied by inflammation. This is true, for instance, of the urinary and alimentary tracts; of the respiratory and circulatory apparatuses; of the various sinuses; and of the biliary system, including especially the gallbladder.

The next step in the process after stasis is infection, because bacteria, which under normal conditions would be carried away, find favorable conditions for their growth in a stagnant fluid.

The final result is the formation of calculi by precipitation, the phenomenon being favored by stagnation, inflammation, and perhaps by some diathesis. While recognizing this as the usual sequence of events, it must be understood that it is not the only one because stones occasionally form from stasis alone, without bacteria, for example, in the gallbladder, or in the presence of foreign bodies without stasis.

Admitting that stasis accompanied by infection and lithiasis frequently occurs in both kidney and gallbladder, the question reiterates itself, why are they not more frequently coincident? And the situation becomes still more puzzling when it is remembered that a loose kidney, in which stasis and inflammation are peculiarly liable to develop, has a tendency to produce similar conditions in the gallbladder, by direct pressure when enlarged, or by kinking the cystic duct from adhesions or from the pull exerted upon certain peritoneal bands.

Hence, with our present limited knowledge, the only solution of the problem seems to be the one advanced by Lukas, that the respective "diatheses" favoring the precipitation of substances in the urine and in the bile are diametrically opposed to each other and can exist in the same individual under exceptional circumstances only. With this rather lame explanation we shall have to be contented, for the time at least, although I trust some one in this Society will be able to offer a better one.

¹Lukas—Archiv. Klin. Chir., Jan., 1920, B. 113, H2. p. 386.

DISCUSSION.

Wm. M. Spitzer, Denver: Dr. Freeman's statement about "diathesis" explaining the occurrence of kidney stones or of gall-stones is what I want to talk about. I do not think the explanation that stone is due to a peculiar "diathesis" is at all lame, but it requires a new conception of this "diathesis" to explain such occurrence of stone in the kidney or gallbladder.

Imprimis, I do not know what causes stone. I

must start out with this statement; and, further, nobody else has ever had a theory which would hold water as to the cause of stone. Any theory, up to the present time, can be disproved in less time than it takes to explain it, and with more certainty. For instance, stasis and infection, in combination, are given as a cause and this cause is most commonly accepted. Yet stasis and infection occur in pus kidneys and stone is rare in these cases. Stasis and infection occur in the bladder, with enlargement of the prostate, and yet formation of stone in the bladder, with these conditions existing, is comparatively rare.

There is a new theory as to the cause of stone, which I cannot throw down but somebody else probably can, as follows: that certain solids occur in the blood and in the urine in colloidal suspension. For instance the urine contains urea in such quantity that distilled water is incapable of holding, and this because it exists in the urine in colloidal suspension. What is colloidal suspension? I am not chemist or physicist enough to explain, but it is a fact that after silver has been passed through the arc of an electric light it becomes colloidal and will float in water, having thereby changed its physical properties. There are two forms of colloids, a reversible and an irreversible colloid. Now when a reversible colloid is, by any physical condition, or contact with another form of chemical, thrown out of suspension, another process may bring it back into suspension. This probably occurs in the pelvis of the kidney frequently and stone does not form. When, however, an irreversible colloid is thrown out of suspension, it cannot go back into suspension, and a stone may form.

There is a probability that one kind of irreversible colloid forms stone in the gallbladder and that another kind of irreversible colloid forms stone in the kidney, and that it is difficult for these two colloids to exist in the blood at the same time. This would explain the rare incidence of stone in the kidney and the gallbladder in the same patient, the subject of Dr. Freeman's paper.

Philip Hilkowitz, Denver: In view of the fact that little is known regarding the causation of stones whether in the kidney or in the bladder, I take the liberty of adding a few comments. This problem has occupied the attention of clinicians and pathologists for a great many years. I recall in this connection the classic work of Naunyn and more recently of Aschoff and Bacmeister in their endeavor to explain the causation of gall stones.

I confess to natural antipathy to the term diathesis, as its connotation is rather vague. In my humble opinion, the rarity of simultaneous occurrence of stones in the kidney and the gallbladder does not require the rather forced explanation of being due to antagonistic principles.

It is highly probable that local conditions form the most important factors, such as stasis or infection. Where both the gall bladder and urinary bladder show stones, both organs have local disturbances entirely independent of constitutional origin.

As Dr. Spitzer has rightly intimated the essential cause is closely interwoven with the study of colloids, that branch of physical chemistry which is destined to shed much light on the vital processes of organic life.

Some of the laws of the formation of stones have been formulated by Schade, who has shown experimentally the influence of colloids in the formation of stones.

As time will not permit us to enter into the finer details of this interesting subject, I shall merely content myself in pointing out the direction in which future investigations are apt to throw light in this field.

Dr. Freeman (closing): I thought I knew something about this subject, but after this "high-browed" discussion I am now so confused that I am not able to say anything more.

THE EARLY DIAGNOSIS AND THE TREATMENT OF CANCER OF THE UTERUS.*

ROBERT T. FRANK, A.M., M.D., F.A.C.S.

1. Economic and Social Importance.

The cancer problem is always with us. More than eighty thousand victims are carried off each year in the United States by all forms of cancer, more than twelve thousand women succumb yearly to cancer of the genital tract¹, and of every one thousand women who die of cancer 276 die of uterine cancer². Many of the victims are in the prime of life, twenty-five percent being between thirty and forty years, thirty-three percent between forty and fifty years of age and twenty-five percent in the fifth decade.³

In the State of Colorado, according to the Bureau of Vital Statistics, the following applies:

Year.	Total No. Deaths.	Cancer Deaths.
1918	17,812	691
1919	11,976	628
1920	13,569	662

An analysis of the 628 cancer deaths during 1919, in this state, shows that 123 were due to cancer of the uterus. Of this number apparently only 29 had undergone some operative procedure, some of the operations doubtless being merely palliative. What Taylor⁴ said in 1912 apparently still applies, namely that only about one woman in twenty is given even a fighting chance.

As cancer in its early stages is a local, eradicable and curable disease, this means that treatment is instituted too late.

2. Diagnosis.

The recognition of early cancer may be difficult, but on the other hand such cases are rarely seen. In less than one-half of one percent is a nodule found in cervical carcinoma, ninety-nine and five tenths percent being excavated ulcers or cauliflower growths when first observed. In an experience of twenty years I have seen only two cases of cancer in its earliest stage.

a. Symptomatic. In the early stages cancer has no absolutely characteristic symptoms. The irregular bleeding resulting from trauma (douche, coitus, examination), the vaginal discharge and the vulvar irritation may be produced by numerous other diseases, such as cervical erosion and polypi extruding from the cervix. By the time that the bleeding becomes excessive, the discharge foul, and that pain supervenes, the cancer is no longer a local, removable process, but a diffuse pelvic disease.

b. Types. In about ninety percent of cases the uterine cancer is located in the cervix. When situated on the vaginal portion and cauliflower in type (exophytic) the exposed site and friability of the tumor produce earlier and more striking signs than when it is within the cervical canal and of the infiltrating (endophytic) variety. Hence because of later recognition and because the thin shell of cervix is readily perfor-

ated, endocervical cancer is the most fatal. Cervical cancer may be either a squamous cell or a glandular carcinoma. The malignancy is not greatly influenced by the type.

In about ten percent of uterine cancer the growth develops within the body of the uterus. This form is almost invariably glandular, grows slowly and has a far lower degree of malignancy than cervical cancer. As a rule it appears in older patients, but it is essential to remember that uterine cancer, both cervical and corporeal, has been found in children and in young women (18-25 years).

Therefore it becomes apparent that if no early symptoms characterize the disease, and if no age is exempt, cancer will be recognized in time for cure only if the patient seeks medical advice early and the medical adviser is on the alert, at once makes a local examination (palpatory and specular) and is sufficiently trained to recognize abnormalities.

c. Local Signs. It is unfortunate that the examiner's diagnostic skill is but rarely taxed. Rarely will a suspicious erosion, a small ulcer, or an indurated nodule be encountered. More often the massive, foul smelling, friable cauliflower, or the huge indurated crater will at once betray the advanced and neglected cancer of the cervix.

d. Diagnostic Excision and Curettage. However, should doubtful cervical lesions be encountered—and in this region benign erosions, inflamed eversion, decubital ulcers due to pressure of pessaries or irritation from prolapse, chancre, tuberculous ulcers, gonorrheal warts occur—a wedge-shaped specimen should be excised for diagnosis and sent to a competent pathologist for opinion. (Figs. 1 and 2.)

Enlargement of the uterine body, accompanied by irregular hemorrhages and a meat-water or foul discharge, are highly suspicious of corporeal cancer. Coincidence of corpus carcinoma and

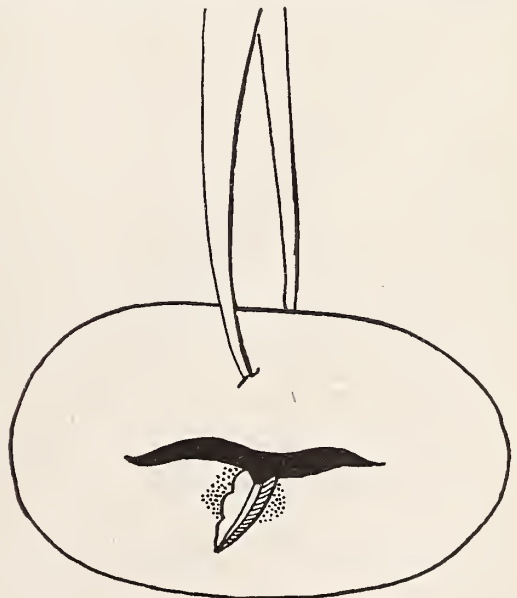


Fig. 1.

The cervix is shown, drawn into view by means of a vulsellum forceps. A wedge shaped piece has been excised from the posterior lip through a suspicious appearing area.

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

fibromyoma are also common. Therefore a careful curettage should be performed in such cases and samples of all the curettings, cut in paraffin, examined by the pathologist.



Fig. 2.

The excised piece slightly magnified. The specimen should be dropped into 4 percent formalin solution and sent to the pathologist.

I am well aware that recently voices have been raised against both these diagnostic measures; that the trauma of excision has been said to disseminate the cancer and that the curet has been accused of often missing the diseased focus.

The danger of dissemination by cervical excision cannot be great, as in most doubtful cases the disease will be found not to be cancer. In ulcers and cauliflowers the surface is already broken and the removal of superficial friable portions does not open new channels. However, to avoid all possibilities of spreading cancer the cautery knife can be substituted for the scalpel, the scissors or the sharp spoon.

The curette, in competent hands, rarely misses corporeal new growths. Methodical exploration of the tubal angles, of the isthmic region, of the crannies between submucous fibroids must be performed. Further observation and repetition of the curettage, if new symptoms develop, can always be instituted.

But the woman whose uterus has been removed for "a precancerous lesion", or for "suspected malignancy" has no such come-back, particularly if she is one of the one to five percent of fatalities which occur in the most competent hands. The recklessness and disregard for human rights and human life displayed by some operators is appalling, and to some degree justifies the fear and horror of operation which causes many women to avoid medical examination until a cancer has become inoperable.

3. Course.

Untreated, a cervical cancer causes death on the average in one and three-fourths years. Corporeal cancer is on the average fatal in from two to four years⁵. The victims from uterine cancer suffer terribly from the pain, the hemorrhages and the foul smelling, excoriating discharge. Complications such as vesico-vaginal and recto-vaginal fistulae, ileus, or metastases anywhere may be looked for terminally.

4. Treatment.

Corporeal. Cancer of the uterine body is operable in ninety-five percent of all cases. A complete hysterectomy suffices to cure from sixty to ninety percent. Vaginal hysterectomy is often preferable to the abdominal route unless technical difficulties contraindicate.

Cervical. Cancer of the cervix is operable in less than fifty percent of cases. Wertheim, whose experience with the radical operation was immense, found an operability of forty-eight percent and was able to effect a permanent cure

(five years or more) in only eighteen and four tenths percent⁶.

The radical operation for cancer is one of the most exacting of all surgical interferences. It should not be undertaken lightly; it is not for the tyro or the occasional operator. In good hands the primary mortality rarely falls below ten percent and except in early cases the number of cures is disappointing.

When the infiltration begins to extend into the parametrium I advise radiation even for so-called borderline cases. Simultaneous intra-cervical and vaginal application, up to six thousand milligram hours, of well filtered radium given within the course of a week are indicated. Massive deep x-ray treatment of the parametrium through the abdomen and back should later be given to the parts presumably unaffected by the radium.

Preliminary radiation, followed by complete hysterectomy within four to five weeks after the treatment, is lauded by some and warned against by others. The hysterectomy should be complete, but a radical Ries-Wertheim operation is not to be performed.

It is too soon to speak of the final results with radium. In inoperable cases radium appears the sole possibility and has proved an inestimable boon as a palliative. In borderline cases radium competes favorably with operation. In early cases radical removal should be performed unless marked obesity or serious systemic disease contraindicates.

Deep cancerous infiltration of the vesico-vaginal or recto-vaginal septum contraindicates the use of radium, because fistula formation regularly follows. In these cases palliation should be obtained by the Gellhorn acetone treatment and by anodynes.

5. Summary.

1. Cancer of the uterus is an insidious disease with painless onset. The early symptoms of hemorrhage and discharge are often overlooked by the patient and sometimes by the physician.

2. Cancer is not a disease of old age and pain is a late symptom.

3. Diagnostic excision and diagnostic curettage should be practiced in all doubtful cases. Unnecessary and reckless hysterectomy for "suspicion of malignancy" cannot be too strongly condemned.

4. In early cervical cancer radical operation still offers the most favorable chance for cure.

In borderline and inoperable cervical cancer radium, combined with x-ray, gives good results.

The misery of far advanced cases with diffuse infiltration of the septa is increased by radium application.

Corporeal cancer is cured by simple complete hysterectomy.

5. I desire to emphasize two points in this paper. The one is the growing tendency to reckless radicalism for "suspected malignancy". This tendency is to be strongly condemned. The other, which has already revolutionized the treatment of uterine cancer, is radiotherapy. Hitherto hopeless cases can now be cured in

some instances. Perhaps in the near future operation for uterine cancer may become unnecessary and obsolete. Early recognition and early treatment will, however, continue to be as essential as ever.

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DISCUSSION.

O. M. Gilbert, Boulder: (Dr. Gilbert, by permission, devoted his time to laying before the Society the plans of the National Society for the Control of Cancer for a "Cancer Week" campaign for education of the laity.—Ed.)

W. W. Grant, Denver: It is an axiom in surgery today that no woman should be permitted to pass the fortieth year without a thorough examination to detect whether or not there is a lesion of the cervix, and by this I mean especially women who have borne children. For many years, now, the profession has been united in regard to removing this cicatricial tissue, and sewing up the cervix as a prophylactic procedure. As has been stated so well, cancers of the uterus generally originate in the cervix, and the tendency is, in time, to degenerate into malignant conditions, so today the one method is to remove this cicatricial tissue and sew up the cervix, where there is an ulceration or lesion.

H. A. Green, Boulder: I think that Dr. Frank has discussed this question from the practical standpoint. I remember hearing Dr. Oehsner discuss the cancer question, as to the cause, when he brought out the idea that cancer is caused by the use of vegetables that are not well cleaned. In other words, a filthy disease, a dirt disease. At the same time, Dr. Mayo read a paper in which he said that it was caused, he thought, by the use of too much meat. Again, Dr. Mayo read a paper before our society in which he theorized that it might be caused by the use of hot drinks, so we are theoretically at sea regarding this disease. I spent three years in Africa among the natives of that country, and examined thousands of them, and I only saw what I surmised to be one case of cancer during those three years. There is something among us, as a civilized nation, that is back of this disease. We hope that those who are spending their lives in this research will find something that will be tangible to us. We also hope that the men in Denver who are here today, and those who are working along this line, will be able to help put down those who are using quack methods. I had some cases brought to my attention where there was evident neglect by those who are using this means to detain people who could otherwise be helped. I have known of a number of cases where radium was said to have been used, where we know it was not used in any form. There are many of these things before us as a society that we can be working on, that we know will be beneficial to those people, and I am sure that some steps will be taken along this line in this state as well as other states, and we will be able to help these people in time.

G. A. Boyd, Colorado Springs: The one outstanding fact in the origin of cancer is that ninety percent of cancers give a history of stimulation of cell reproduction. We know, or at least I am going to say so, and you can challenge it, that there is a possible mutation in the cells, and that it is possible to effect a variation in the cell, reproduc-

tion of an epithelial cell to the point of continuous unlawful growth. If this is true, and these changes can be made out, and they can, there will be an opportunity to diagnose cancer before the time that the epithelial cell breaks its normal barrier and begins its invasion of the body.

James C. Masson, Rochester, Minn.: I have been very much interested in the paper. I think there are one or two things that have not been mentioned, especially in regard to treatment. The Percy cautery, or the slow destruction of malignancy by "cold iron" has not been mentioned. I think it is a form of treatment that has proved of definite value in certain cases. There is no doubt that in the earlier cases a total abdominal hysterectomy preceded by a cauterization of the cervix is a simpler and safer method in the hands of most surgeons. I think the thorough destruction of the local growth with a cautery is often neglected and frequently accounts for local recurrences. In growths a little more extensive, with probably some blocking of the larger lymphatics, I think that Doctor Percy's method if followed more thoroughly would save lives. It is a method that has probably dropped out a good deal except in the hands of Dr. Percy himself, simply because the operation is a long one and is more dangerous than the ordinary hysterectomy. The mortality will probably be a little higher, but more cases can be treated satisfactorily by the general surgeon. We are not doing the operation at all at Rochester now, but I think it could be used to advantage. I think it is especially useful where there is an insufficient supply of radium. Before we had sufficient radium we ran a series of about fifty cases following the Percy technique, and our results were very satisfactory. We had some fistulas, and I think one needs to expect fistulas following the use of it, but fistulas will be fewer, the more experience a person has with the treatment. I have examined several cases treated in this manner, several of which had some involvement of the vaginal vault, at the time of the operation, as long as two years afterwards—with apparent cure.

Another thing in Doctor Frank's paper: He advised against the use of radium in the inoperable cases. I can not agree with the doctor. I think that is probably the largest field for the use of radium. We have a large series of cases at the clinic now which were regarded as hopeless as far as surgery was concerned. Radium in full doses was used, with remarkable results. Some of the cases are of two years' standing, with complete relief as far as clinical signs go. Pain has not been a feature in these cases. I think a great deal of harm has been done by using too small doses of radium in these advanced cases. I think another promise for the future, so far as surgery is concerned, if we need to rely on surgery for the cure of cancer, is the combined use of radium and surgery. Full doses of radium followed, after any reaction has passed, by a total abdominal hysterectomy have given very satisfactory results. There is no doubt that we should not depend upon surgery alone for cure of cancer, and we hope that some day a serum or vaccine will be introduced that will promise something, although so far nothing of this kind has been brought out.

Dr. Frank (closing): What Dr. Gilbert said to you about encouraging the cancer propaganda is important. However, such efforts are not always successful. I know the most carefully conducted propaganda was that of Winter, of Koenigsberg in Prussia, who for ten years circularized the profession and the public. His percentage of operability in cancer did not increase very materially. However, I think we are dealing with a more intelligent public in this country, and we ought to keep on with it. The ones who want to be on the lookout are the physicians. There is nothing more harrowing than to feel that you have overlooked a cancer. I hope none of you have overlooked one. On the other hand, the public do not cooperate properly; they come too late. But there is no excuse for forty percent of patients being treated from two to ten months, medically.

for cancer of the cervix, as was noted by Stone of New York in a series of 135 patients who came to the General Memorial Hospital in 1919.

I know of two instances in the literature where cancer developed after repair of the cervix.

I am glad Dr. Green brought up that question of Dr. Ochsner's beliefs. I don't know that he accused any one vegetable of causing cancer. At the present time he is absolutely positive that Dr. Nuzum of Chicago has discovered the micrococcus of cancer.

Dr. Boyd's remarks about the biology of cancer are theoretically correct. My paper was meant to be a practical one.

I do not intend to point out anything in regard to the operative technique. I wanted to emphasize three things: there is no cancer age. Cancer has been found in the cervix of children of six months (Ascheim-Bumm), and Dr. P. Findley found cancer of the cervix in a woman of ninety-three. If you want to call the intermediate period the cancer age, I am in accord with you! I know of no more harmful phrase than the phrase, "precancerous". Dr. Ewing of New York, a wonderful pathologist, but a radical one, says that one can fail sometimes to diagnose a case "during the process of becoming cancerous". If you see a case that is clinically suspicious, submit a specimen to a good pathologist. Have your specimen examined. If your pathologist says it is nonmalignant, believe it, if he is a good man. If he says it is suspicious, don't take out the uterus. If it is so little suspicious that a pathologist cannot make a definite diagnosis, and your clinical picture is not that of malignancy, you are safe to wait for two to four or six weeks more, watching that patient and if necessary removing another specimen for diagnosis before you take out that uterus.

Dr. Masson spoke about the Percy cautery. I remember the time Dr. Percy came to New York and showed the operation. I was present several times when the operation was performed, and it impressed me very unfavorably. Dr. Masson misunderstood me about the application of radium. I said that radium should not be applied in inoperable cases of cancer, in which the vesicovaginal and the rectovaginal septum are involved. I repeat that radium is the one thing to use in inoperable cases of cancer which do not present this condition of involvement of the septa. In borderline cases, where radical surgeons still operate, I prefer radium. In cases that are very far advanced I would use small amounts of radium repeatedly rather than one big dose, because the intoxicative result from the absorption of this breaking down cancer kills the patient. I have not entered into technical details. The one thing I did not mention—but this is a technical detail—is that you can very well go ahead and radiate a borderline case, or early case—radiate them—and then seven days to three or four weeks later perform a hysterectomy.

Not long ago I saw a woman who died of acute intestinal obstruction, and who also had advanced intracervical cancer. The cause of obstruction was adhesions due to an infected wound from an operation performed one year ago. At that operation her fibroids were removed. At the time that the supravaginal hysterectomy was performed that woman already had a cancer. You must make sure by careful examination. In this case the cancer was overlooked, and she died a miserable death, due to a combination of cancer cachexia and intestinal obstruction.

NEW AND NONOFFICIAL REMEDIES.

During March the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

The Intra Products Co.: Sterile Suspension Mercury Salicylate in Cacao Butter; Sterile Suspension Mercury Salicylate in Olive Oil.

Meadows Oil and Chemical Corp.: Ammonium Ichthyolate-Meadows.

TRICHOMONAS VAGINALIS VAGINITIS.*

JOHN B. HARTWELL, M.D., F.A.C.S., COLORADO SPRINGS.

Vaginal discharge is the presenting symptom of the condition under discussion. This vaginal discharge is so irritating as to be "scalding" to the skin with which it comes in contact; it is so profuse as to frequently necessitate the wearing of a napkin; it is so perversely persistent as to fail to respond to ordinary measures. The scalding of the skin is often so severe that the patient is handicapped in the performance of her duties by day and the associated pruritus is so intense that her night's sleep is disturbed. During the menstrual period, however, the irritation and itching usually subside. In addition to this the discharge is frequently so malodorous that it interferes with the patient's social activities. In consequence, the majority of patients are mentally depressed, discouraged, nervous and many have lost some weight. The deleterious effects of this condition are quite comparable to those caused by the insignificant but debilitating fissure in ano.

When a patient presenting these symptoms is examined it is often noted that the skin of the inner aspect of the thighs and over the perineum is reddened if not eroded by the irritating vaginal discharge. On spreading the labia the vestibule is usually bathed with a thin whitish secretion and the mucous surfaces of the labia minora and the carunculae myrtiformes may present minute bright red macules. Occasionally small condylomata stud the labia. When the speculum is introduced, there is seen in the vault a quantity of puriform secretion notably full of bubbles, and this secretion may be superlatively malodorous. On removing it, the vaginal mucosa presents the beefy red appearance of any vaginitis if the process be acute or is quite normal in color if the process be chronic. In either case, however, the characteristic raised papules, irregularly scattered over the mucosa, are in evidence. They may be solitary or aggregated in small groups and not infrequently the apices of the papules are eroded, presenting superficial ulcers of small size which may bleed. The appearance presented by the vaginal mucosa is strongly suggestive of a dermatitis produced by a chemical irritant such as iodine, or of the early lesions of an herpes zoster. The reaction of the vagina is very strongly acid.

Such appearances are almost pathognomonic of a trichomonas vaginalis vaginitis, but the diagnosis is confirmed by microscopic examination of a bit of the bubbly puriform secretion when large numbers of motile flagellated trichomonads are easily recognized. These protozoa have a diameter of two to three times the diameter of a pus cell. They differ from each other considerably in shape, some appearing round, others oval or pyriform. The flagellae are often difficult to recognize but the apparently dancing, highly refractive particles in the cell catch the eye at once. Stained smears of

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

the vaginal secretion will not demonstrate these animalcules.

It has always surprised the writer that the apparently purulent secretion does not in reality contain many pus cells. It is composed almost exclusively of squamous cells, and trichomonades. Pus cells are rare.

De Lee¹ reports that he has usually been able to rid the vagina of these organisms in four days and advocates scrubbing the vagina most thoroughly with green soap, using a rough cloth. Following this mechanical cleansing and douching, he packs the vagina with tampons soaked in glycerine and bicarbonate of soda. In my hands, however, these results have not been duplicated, though prompt relief from the irritation from the discharge has been obtained and the disagreeable odor has been dispelled. Likewise, saturated solutions of methylene blue and douches of the quinine salts have yielded disappointing results.

My most satisfactory results have been obtained by placing soda bicarbonate powder in the vaginal vault. The following morning the patient takes a douche of plain water. In the afternoon the treatment is repeated. Daily treatments are required for about two weeks and every second day for another four weeks before the vagina is free from trichomonades.

The principle of treatment is to maintain the reaction of the vagina strongly alkaline, which alkalinity seems to be inimicable to the life and growth of the trichomonas vaginalis.

Trichomonas vaginalis vaginitis is a common affection and is a serious affliction. It is usually not recognized because stained smears of a vaginal secretion are the rule and stained smears do not demonstrate the flagellae, though the character of the discharge and the appearance of the vagina are distinctive. If fresh smears be examined before they have chilled or dried the origin of a most intractable vaginal discharge will be made plain and intelligent curative treatment can be undertaken.

¹De Lee-Jos. B.—Illinois Medical Journal, 1920, March, XXXVII, No. 3.

DISCUSSION.

F. P. Gengenbach, Denver: I would like to ask Dr. Hartwell whether he has seen any cases in children. I have seen some of the trichomonades in specimens of urine without causing many symptoms; there is some vaginal discharge which never, apparently, reaches the stage such as he describes as occurring in adults.

Dr. Hartwell (closing). In reply to the first question, I might say that trichomonas vaginalis and the trichomonas intestinalis, while they belong to the same family, are yet separate species, and I have not made any effort to examine the stool in these cases in which the trichomonas vaginalis has been found in the vaginal discharge. And in reply to Dr. Gengenbach, I have not seen any of these cases in children, although I have seen the condition in a young woman of sixteen, my youngest patient.

News Notes

Dr. F. E. Palmer of Sterling has left for New York and will sail April 25 to attend clinics in Vienna and other European cities. Dr. John H. Martin has come from Rochester, Minnesota, to take care of Dr. Palmer's practice.

It came to our attention too late for publication in the March issue that our President, Dr. Harry A. Smith, underwent an operation in Cleveland, Ohio, in March from which he was convalescing at the time our information was received, March 17.

Dr. Carroll E. Edson of Denver was called east March 24 by the serious illness of his aged mother, who died before he could reach her.

Dr. F. N. Cochems of Salida is understood to have gone to Europe and is not expected to return to Colorado for several months.

Dr. Charles A. Powers of Denver has been re-elected President of the American Society for the Control of Cancer.

The Public Health Institute, which was to have been held in Denver in May under the joint auspices of the United States Public Health Service and the Colorado State Board of Health, has been called off.

Dr. G. M. Anderson of Casper, Wyoming, and formerly of Denver, was a visitor in Denver in the early part of April.

National Board Examinations.

The dates for the next two examinations of the National Board of Medical Examiners are as follows:

Part I and II, June 19, 20, 21, 22 and 23, 1922.

Part I and II, September 25, 26, 27, 28 and 29, 1922. Applications for the June examination should be in the secretary's office not later than May 15th, and for the September examination not later than June 1st. Application blanks and circulars of information may be had by writing to the secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

DEATHS.

Dr. John Elsner of Denver, who practiced there successfully for many years, died on April 1, 1922. Dr. Elsner was born in Vienna, Austria, in 1845, graduated from Bellevue Hospital Medical College in 1866 and came in that year to Colorado as a medical officer of the federal army. He is said to have been the founder of the present county hospital of Denver while acting as county physician in 1870. He is also one of the founders of the old Gross Medical school and the National Jewish Hospital for Consumptives. He was well known as a collector of books and art objects, having at the time of his death a very large private medical library and many valuable and rare old volumes.

Dr. Robert M. Pollock of Rocky Ford died March 21, 1922, after an illness of some two years. Dr. Pollock was active in community work, both medical and civic, and was mayor of Rocky Ford for three successive terms. He was born in Pennsylvania in 1868, spent his boyhood in Illinois and graduated from Rush Medical College in 1895. Five years later he moved to Rocky Ford.

Dr. John A. Black of Pueblo died April 5, 1922, at the age of 63. He was born in West Virginia in 1858, graduated from Washington University in 1882 and had been a practicing physician in Pueblo for more than thirty years; and only in the last two years did he curtail his practice because of ill health, for which he recently had spent some months in California. Dr. Black served with honor as president of the Colorado State Medical Society for the term 1912-1913.

The death of Dr. D. Macdougall King occurred March 18, 1922. Dr. King came from Canada to Colorado for his health several years ago, and although he did not engage in active practice he very soon identified himself with the County and State Societies. He was the author of the book, *The Battle With Tuberculosis and How to Win It*, founded partly on his own experiences. He was born in 1878. The cause of death was pulmonary tuberculosis with complications.

Medical Societies

COLORADO NEUROLOGICAL.

The eighth regular meeting of the **Colorado Neurological Society** was held March 17, 1922, at the Cactus Club, Dr. George A. Moleen presiding.

Dr. Cyrus Pershing reported two cases of doubtful etiology. The first patient, a woman, complained of paresthesia and twitching of one side of the face. There was a history of influenza and attendant drowsiness, two years previously. Paresthesia and twitching had persisted from that time. The Wassermann reaction was negative. The probable diagnosis was encephalitis. The second patient complained principally of insomnia. The knee jerks were absent and the pupils were stiff. The blood Wassermann was negative. The spinal fluid was normal throughout. The probable diagnosis was syphilis of the central nervous system.

Dr. L. V. Tepley reported a case of probable encephalitis. The patient had been lethargic for five days, and was afterwards apathetic during the daytime, although alert in the evenings. There was ptosis of the right eye. Somatic delusions were present. The blood and spinal fluid were negative. The urine contained a trace of albumin. The temperature was slightly elevated.

Discussion followed as to the connection between encephalitis and influenza.

Dr. Howell T. Pershing reported a case of tabes dorsalis of long standing but without progression of the symptoms. The previous name for the disease was progressive locomotor ataxia. The patient in point was first seen in 1897. There was a definite history of syphilis, and the symptoms and physical findings were typically those of tabes. The patient was treated with potassium iodide and protiodid of mercury. The disease had made no perceptible progress, although the patient occasionally complained of light pains. The gait was a little cautious. The patient is now nearly seventy years of age.

In the discussion a case was cited in which lancinating pains had been present for forty years. The gait was still fairly good. Another case was cited in which the knee jerks were still present after persistence of lancinating pains for fifteen years. The Wassermann reaction on the spinal fluid was strongly positive, and the fluid contained over one hundred cells to the cu. mm.

Dr. E. W. Lazell discussed polyglandular dystrophies, and spoke of the effect of fear on the suprarenals, and the indirect effect on the thyroid. There were two hundred cases of hyperthyroidism in Denver, under the care of the United States Public Health Service. These were now being treated in classes by psychotherapy. The work was experimental, but Dr. Lazell invited the inspection and critique of the Society.

Dr. C. S. Bluemel reported a case of persistent sneezing in a young woman of twenty-five. Sneezing had continued with occasional periods of remission, for ten weeks. These remissions occurred after cauterization of the nose and dilatation of the uterus. When these methods finally lost their efficacy the patient was brought to Denver for consultation. Sneezing appeared to be of psychogenic origin and was promptly checked when the mouth was heavily strapped with adhesive plaster and a bandage was strongly applied around the head and under the chin. Suggestion was also made to the patient that she could voluntarily control the sneezing, and that the adhesive and bandage would help her. The adhesive and bandage were kept in place three hours; sneezing did not return when they were removed.

Dr. G. A. Moleen reported a case of probable psychic epilepsy. The patient, a young man of twenty-five, had received a severe blow on the head while boxing. This incident occurred in the army. After his discharge from the army he be-

came irregular in money matters with the insurance company with which he was associated. He averred that he was not conscious of these irregularities, and that he was not morally responsible. He was apparently subject to lapses of consciousness. Upon one occasion, after attending mass, he found himself being brushed off, on the cathedral steps. Upon another occasion he found himself walking on Colfax avenue, although he lived in another part of town. He once went to his house and, addressing his wife at the door, inquired where his wife was. He had assaulted a man in the court house because he did not like his looks.

The patient was frank and lucid in giving his clinical history. The tendon reflexes of the right side of the body were slightly more active than those of the left. There was slight inequality of the pupils. The right optic fundus was a little hazy. Blood and spinal fluid negative.

Inasmuch as there were no criminal proceedings against the patient there appeared to be no occasion for him to perpetrate deception. However, the patient had subsequently used the report of the examination as a basis for a claim for compensation with the United States Public Health Service.

Dr. F. T. Stevens and Dr. T. R. Knowles were appointed on the Committee of Arrangements for the next meeting to be held at Colorado Springs, May 13th.

C. S. BLUEMEL, Secretary.

COLORADO OPHTHALMOLOGICAL.

The regular meeting of the **Colorado Ophthalmological Society** was held on January 21, 1922, in the assembly hall of the Medical Society of the City and County of Denver, Dr. D. A. Strickler presiding.

W. C. Finnoff, Denver, presented a young man who seventy-two hours previously had received on the right side of the face a blow from a fist. The vision of the right eye became dim. There was a disturbance of the retina at the macula. The case was one of commotio retinae, or disturbance of the retina from contusion. Discussed by Edward Jackson.

W. C. Finnoff, Denver, presented a woman aged sixty-four years, who on December 24, 1922, had noticed that the vision of the left eye was poorer than that of the right. There was no pain or discomfort, and the history was negative as to injury. The whole retina of the left eye was detached, with the exception of a small area in the central region.

W. A. Sedwick, Denver, presented a man, aged thirty-two years, who had come on account of blurred vision in the right eye and a sensation of scratching in the eye, of variable location. Two years previously, while he was picking in a mine something had flown into the eye. The right iris was a good deal discolored, and showed a wound between seven and eight o'clock, corresponding to a very small corneal scar. The vision of the affected eye was not greatly inferior to that of the other eye. The lens was partially cataractous. X-ray localization showed a small foreign body downward and to the nasal side near the optic disc, probably lodged in the coats of the eyeball. On account of the location of the foreign body and the length of time that it had remained in the eyeball, an attempt at its removal was thought inadvisable. Discussed by H. R. Stilwill, W. C. Bane, C. E. Walker and Melville Black.

W. C. and W. M. Bane, Denver, presented a youth, aged eighteen years, whose left eye had on January 2, 1922, been struck by a BB shot from an air gun. The vision had at first been almost completely abolished, but had steadily improved to 5/30 with correction. There was a web-like opacity in the posterior cortex of the crystalline lens. Discussed by W. H. Crisp.

F. R. Spencer and C. L. La Rue, Boulder, presented two striking cases of opaque nerve fibers in women college students aged nineteen years.

each of whom had come on account of refractive strain.

W. F. Matson, Denver, presented a youth aged nineteen years who on July 2, 1919, had received an injury in the left eye caused by a blow from a baking powder can which he had filled with gunpowder, touching it off with a fuse at a distance of fifteen feet. The lens capsule had been ruptured, and the lens had been gradually absorbed without producing hypertension. Was it advisable to open up the opaque lens capsule? Discussion was in favor of leaving the eye alone.

E. E. McKeown, Denver, presented a man aged forty-one years who had come complaining of headache and double vision. Some time ago he had had influenza, from which he had not made a good recovery. In October, 1921, he had fallen eight feet from a loft to a board floor, and after the fall had remained irrational for four hours. Six weeks after the injury he developed an aphasia and some numbness in the right hand. Each fundus showed choked disc of about three diopters, and there were also some small retinal hemorrhages. There was doubt as to diagnosis between albuminuric retinitis, syphilis, and brain tumor. Discussed by Melville Black, Edward Jackson, W. C. Finnoff and F. R. Spencer.

WM. H. CRISP, Secretary.

The regular meeting of the **Colorado Ophthalmological Society** was held on February 18, 1922, in the assembly hall of the Medical Society of the City and County of Denver, Dr. D. A. Strickler presiding.

W. C. and W. M. Bane, Denver, presented a woman aged forty-seven years who since the early part of December, 1921, had suffered from an episcleritis of the right eye. There had been a great deal of pain, severe photophobia, lacrimation, and blurred vision. The upper and outer portion of the eye was deeply injected, and at or near the insertion of the superior rectus were two small whitish elevations, each about one mm. in diameter. Discussed by Melville Black, W. H. Crisp, J. A. McCaw, C. E. Walker and Edward Jackson.

W. C. and W. M. Bane, Denver, presented an infant aged eighteen months, who had been brought because the parents had noticed that the right eye seemed larger than the left and that the surface of the eye looked hazy. The tension of the eye was elevated and the cornea measured twelve mm., while that of the left eye was only ten mm. in diameter. The diagnosis was buphthalmus or congenital glaucoma. Discussed by Melville Black, W. H. Crisp, D. H. Coover and C. E. Walker.

J. M. Shields, Denver, presented a man aged twenty-two years, who had served for three years in Europe in the recent war, and denied having any eye trouble prior to receiving a shrapnel wound over the left eye on June 8, 1918, and a severe gassing the following morning. He stated that after his gassing he had been totally blind for about six weeks, after which the vision had gradually improved. The vision was now R. 5/30, L. 5/10. There was bilateral posterior cortical cataract. Discussed by W. C. Finnoff and Edward Jackson.

J. M. Shields, Denver, presented an artilleryman aged twenty-four years, who dated his ocular disturbance from August, 1918, when he had received a small foreign body in the left eye while he was on duty at target practice. There was a massive detachment of the left retina. Discussed by Melville Black and E. R. Neepser.

W. C. Finnoff, Denver, presented two cases of intraocular hemorrhage occurring many years after injury of the affected eye. In the first patient, a girl aged fourteen years, the right eye had been contused by a rock six years previously, the vision being lost at the time of the accident. Recently a slow hemorrhage had occurred into the anterior chamber. The second case was in a man aged forty-four years, whose right eye had been injured thirty-two years previously by the back firing of a shell from a rifle. There had been hemorrhages in the anterior chamber six years

previously, two or three years previously, and within the past few months. Discussed by Melville Black, C. E. Walker and D. A. Strickler.

W. C. Finnoff, Denver, presented a boy aged three years, each of whose eyes was microphthalmic. Each iris presented a typical coloboma down and in, and in the left eye there was a large corresponding coloboma of the choroid. There were also intermittent convergent squint and marked lateral nystagmus. There was a useful amount of vision in the left eye. In addition to the ocular defect, the patient presented defective development of the premaxilla on the right side, which left a wide cleft of the upper lip.

A. C. Magruder, Colorado Springs, reported a case of metastatic abscess at the insertion of the inferior rectus muscle of the right eye, following a carbuncle on the neck. The patient later developed an osteomyelitis of the ischium, and still later eight subcutaneous metastatic abscesses in various parts of the body. In every instance the pus evacuated from the abscess furnished a pure culture of staphylococcus albus. Discussed by W. H. Crisp, E. R. Neepser, D. A. Strickler, Edward Jackson and W. C. Finnoff.

WM. H. CRISP, Secretary.

LARIMER COUNTY.

The regular meeting of the **Larimer County Medical Society** was held at the residence of Dr. T. C. Taylor, February 1, 1922, Dr. T. C. Taylor presiding.

Dr. Frost C. Buchtel and Dr. Chester H. Elliott of Denver were guests. Dr. Buchtel gave a very interesting discussion upon the etiology and pathology of the various forms of goiter. Among other points he made clear was that the continued use of minute doses of iodine in a number of preparations is used as a simple preventive for simple goiter.

Dr. Elliott gave a demonstration of determining the basal metabolic rate and its relation to goiter. His discussion shows that there was a clear reaction in most cases of goiter to the rate of metabolism.

The members of the Larimer County Medical Society enjoy the visits from the Denver doctors and consider that they have learned much from the ones who have been kind enough to come to Fort Collins.

R. W. MORRISH, Secretary.

Notes From the Library

WHAT BOOKS DO YOU WANT?

There may be some book not now in the library which you wish very much to read but do not care to buy. It is often the case that the publisher will supply a given book to the Editor gratis, if review in these columns by a competent person is guaranteed. If you have such a book in mind at any time and will send to Colorado Medicine the book's title and the correct name and address of the publisher, an effort will be made to secure it on the terms mentioned.

BOOK REVIEWS.

Ephraim McDowell, "Father of Ovariectomy" and Founder of Abdominal Surgery, with an Appendix on Jane Todd Crawford. By August Schachner, M.D., F.A.C.S., Louisville, Kentucky. 331 pages. J. B. Lippincott Company, Philadelphia & London, 1921.

This is a well written memorial to the dauntless father of ovariectomy, who put into practice what all the great teachers of Europe discussed

and debated academically but hesitated to attempt. Of thirteen operations during his lifetime McDowell succeeded in curing eight cases. The life of Mrs. Crawford, the first patient of McDowell's, is also set forth. The book not only gives a vivid biography of its chief character, McDowell, but also portrays his teachers, among them John Bell, of Edinburgh, his contemporaries in the United States, the condition of surgery at the beginning of the eighteenth century, the sordid quarrels concerning priority and the manners of these times. Hence this biography contains many matters of interest, and its pages are crowded with characters of all nations and degrees. The progress of ovariectomy throughout the world, after the tardy publication by McDowell of his epoch making achievement, is also set forth. Schachner's book is well worth careful reading by any one at all interested in the history of medicine and the manners and customs of pioneer Kentucky, of the medical schools of Scotland in 1793, and the early ovariectomists like Nathan Smith of Vermont and the Atlees of Philadelphia. R. T. F.

Eye Conservation in Industry: Part of the Study of Waste in Industry Conducted Under the Auspices of the Federated American Engineering Societies. Published by the Eye Sight Conservation Council of America, Times Building, New York City.

Various local studies have yielded a basis for the astounding calculation that there are more than twenty-five million inhabitants of this country whose vision requires correction with glasses, and it has been found in a number of industrial plants that the increased quantity and improved quality of production resulting from such correction when made has more than paid for the cost of correction. It is believed that seventy-five per cent of accidents in industry can be prevented by application of proven methods; and the possibility of prevention is especially significant as pertaining to eye injuries which can be avoided through the necessary protection.

The organization known as the Federated American Engineering Societies came into existence toward the end of 1920. Herbert Hoover was elected its first president, and one of his first acts in that capacity was to suggest a study into restrictions and wastes in industry. This bulletin is one of the first fruits of that study.

It is very difficult to get the average workman to wear a pair of goggles for his own protection. In extenuation it may be said that there are a few occupations in which the wearing of goggles is a decided hindrance. But in the majority of occupations where such protection is necessary the wearing of goggles is entirely practicable. The Commonwealth Steel Company of St. Louis, Missouri, started accident prevention in 1912, and in its insistence upon eye protection even went the length of discharging a few men who refused to wear goggles. In spite of the fact that a part of the work of the company is very hazardous to the eye, since it involves the chipping of steel castings by means of pneumatic hammers, the company reported in 1921 that since the safety work was started in 1912 not a single eye had been lost in its shops; and this notwithstanding the fact that hundreds of goggles were broken by flying chips, and that in a good many instances particles of glass flew into the workmen's eyes. The American Car and Foundry Company has reduced the accidents in its plant seventy-five per cent by the use of goggles. This company also bears witness that the supposed danger to the eyes from breaking of the glass of the goggles does not exist. During a period of three months, the company collected ninety-four pairs of goggles of which the lenses had been broken by flying chips of steel and in every case the eyes escaped injury. At the same time, the breaking of the glasses may be prevented by using laminated lenses made in two parts with a strip of celluloid between them. The bulletin deals with a number of other mat-

ters in eye protection, such as the special measures to be taken in case of eye injury, the correction of substandard vision, the protection of the eyes from radiant energy, and the advantages of scientific illumination of work premises. Among the interesting details elicited in the course of the inquiry is the statement of the Hood Rubber Company that twenty percent of its inspectors were found to be unable to see sufficiently well to discover defects in manufacture. W. H. C.

Chemical Pathology. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph. D., M.D., Professor of Pathology in the University of Chicago, and in the Rush Medical College, Chicago. Fourth edition, revised and reset. Octavo of 695 pages. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, \$7.00 net.

The old rule emphasized by the earlier pathologists that every disturbed function must have as its counterpart some anatomic alteration has lost a good deal of its validity with the advance in knowledge of the biochemistry of the body. More and more recognition is being given to chemical processes in the economy of the organism, especially in the field of disorders of metabolism and of the endocrine glands.

An enormous mass of information previously scattered in books on the various branches of medicine or tucked away in special journals has now been garnered in this volume. The new edition takes cognizance of the recent advance in the various subjects treated. These are: the chemistry of the cell; the rôle of enzymes; the chemistry of bacteria and of immunity reactions; inflammation, growth and repair. Blood diseases are adequately treated from the chemical standpoint. Considerable attention is devoted to edema and its dependence on the laws of colloids and physical chemistry.

The formation of abnormal substances by the various degenerations such as colloid, amyloid, etc., the deposition of lime salts and the formation of stones are treated extensively in a number of chapters. A chapter is devoted to pathological pigmentation and one to the chemistry of tumors.

Disturbances of metabolism are naturally given considerable space. This includes the recent acquisitions in the chemistry of acidosis, especially with reference to diabetes. This disease, as well as gout, is treated in a separate chapter.

The chemistry and function of the ductless glands are exhaustively considered. In view of the misuse of the scientific data gathered in this field by commercial proprietary houses a clearer understanding of this still rather obscure field will be of profit to the reader.

Wells' book is particularly valuable on account of its extensive bibliography. Every statement therein is properly credited to the right authority. This is not always an unmixed blessing, as the didactic value of a text book suffers by the continued references to the origin of a statement.

An enormous mass of data is crammed in the seven hundred pages of this volume. As a reference work it fills a welcome place in the library of the practitioner. P. H.

Smallpox.

Washington, D. C., March 20, 1922.—The Department of Commerce, through the Bureau of the Census, announces that there have been very few deaths from smallpox in recent years. Since the beginning of annual compilations in 1900 the highest rate from this cause in the death registration area of the United States was 6.6 per 100,000 population in 1902, while in 1903 it was 4.2 and in 1904, 2.1, since which time the rate for the registration area has never reached 1 per 100,000 population

Colorado Medicine

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Editorial Comment

THE HOSPITAL AND THE PHYSICIAN.

Two news items in this issue of Colorado Medicine should arouse the interest of every physician. One relates to the recent convention of the Catholic Hospital Association, and the other to the organization of a Colorado section of the American Hospital Association.

The practice of medicine is undergoing a remarkable transition from the old time method of treating patients in their homes to the modern, more convenient and efficient manner of attending them in properly equipped institutions for caring for the sick. This movement for the extension of hospital facilities has of late made enormous strides. People in almost every town and village are banding together for the purpose of constructing a community hospital. It must be admitted in all candor that the initiative for these projects does not always emanate from the medical profession. On the contrary, both the organization and the execution are mostly fostered by the laity, by men and women with a social vision. It is disconcerting at times to note the attitude held by these organizers towards physicians as regarding them wanting in executive or organizing ability. The doctors are also charged, often justly, with motives of jealousy or personal aggrandizement.

Absorbed as we are in our individual work we fail to note the trend of the times or to grasp the hegemony that is rightly ours in hospital planning and construction. The light esteem in which the profession is held by the lay board of trustees and managers of hospitals is to some extent justified by our neglect in familiarizing ourselves with the problems peculiar to hospital administration and financing. How often do we hear the physician inveigh against hospital charges when he does not have the faintest idea of per capita cost or over-head expense of running an institution. It is therefore beholden on every thinking physician to take a greater interest and a more active participation in these hospital conventions.

Another phase, and one more vital to the physician, is that of so-called hospital standardization. The endeavor to put our hospitals on a higher scientific level has not come as the result of a spontaneous movement from the rank and file of the medical profession, but more

from a vis a tergo. It was the outcome of a carefully planned and determined effort on the part of a group of thinking physicians who saw far ahead the inevitable consequences of indiscriminate surgery and inadequate methods of diagnosis in vogue in the hospitals before the era of standardization. The rise of the various cults and irregular practitioners may be traced in part to shortcoming in the profession. The minimum requirements of a standardized hospital—good bedside records, ample laboratory facilities under supervision of a pathologist, and periodical staff meetings—are wonderfully effective in raising the general scientific level of the practice of medicine.

The efforts of hospitals, both public and sectarian, to organize for the better care of the sick should receive the hearty endorsement and the personal interest of every physician. Let him not remain a mere passive onlooker grumbling at the new regime, fretting under the necessity of writing histories and recording physical examinations. Let him rather take the lead in this great movement for promoting the scientific practice of medicine and alleviating human suffering.

P. H.

A SPECIFIC GERM OF EPIDEMIC JAUNDICE.

About the first of this year it became evident in Denver that the occurrence of so-called catarrhal jaundice had assumed the proportions of an epidemic, and since then reports from other sections of the United States show that the epidemic is of wide distribution. In New York State especially, so many cases occurred that the very active Board of Health of that state established a branch laboratory at Syracuse as an aid to the central laboratory at Albany in the study of the etiology of the disease. It seems that through the accidental bite by a rat of one of the lady assistant bacteriologists, the causative organism has been identified and its position securely established, even to satisfaction of the postulates of Koch.

As is the case with so many parasitic diseases, one of the lower animals is found to be a carrier of the offending organism—again the rat, already convicted of other malefactions. It does not appear that all, or even many, cases of epidemic jaundice can be traced to the bite of a rat, but it has been clearly demonstrated that rats do become infected and that the bite of such an infected rat can cause jaundice in

human beings; and it is reasonable to suspect that the rodent is in some more or less obscure way concerned in the spread of the disease.

An interesting account of the incident which seems to have finally established a certain leptospira as the cause of a hitherto puzzling malady, and which further fortifies the theory of the selective action of bacteria, is here quoted in part from the Health News Service of the New York State Department of Health.

"On Friday, February the 3rd, one of our laboratory workers who was preparing for the inoculation of a rabbit with a virulent culture of the leptospira from a rat, pricked her finger with the needle of the syringe containing the culture. The wound was cleaned and disinfected and there were no symptoms until the evening of February 10th, when a fever commenced, accompanied by general malaise, nausea and vomiting. Although the patient's temperature reached 104 degrees there was no sign of involvement of any of the organs. In fact, the diagnosis was quite obscure until cultures of the leptospira were finally obtained. Forty-eight hours after the onset a specimen of blood was taken for culture and for the inoculation of guinea pigs. The direct examination of the blood specimen showed a few forms resembling leptospira, which, however, could not be definitely identified. Further specimens were taken on the fourth day, but no definite evidence of the presence of the organism was obtained until February 24th, when one of the guinea pigs inoculated on February 12th developed jaundice. The following day a second guinea pig, inoculated on February 14th, also developed jaundice. It was at once chloroformed and examined and the characteristic forms of the leptospira were found. The result of the examination therefore leaves no question as to the diagnosis of jaundice.

"Dr. Noguchi of the Rockefeller Institute was the first scientist to find the jaundice organism in rats in this country some years ago. This organism resembles very closely the germ recently discovered by Dr. Noguchi and supposed to be the cause of yellow fever. As soon as he learned of the discovery at the State Laboratory, Dr. Noguchi kindly came to Albany to check over the technical details of the work and to lend the benefit of his long study and experience with this group of microorganisms. He took back to New York with him specimens of blood from the patient which proved to be negative on direct examination, but when some of the blood was later injected into guinea pigs at the Rockefeller Institute these animals also developed jaundice, thus confirming the findings previously reached."

RESEARCH IN RADIOLOGY.

The Radiological Society of North America, an organization which has advanced with rapid strides in the last four years, is launching a somewhat colossal undertaking in the way of research work in radiology. The continued discoveries of new uses for the x-ray and new

methods of application as well as new and more powerful apparatuses are the result of research work carried on largely for the love of it by individuals, many of whom have gained outstanding fame in the field of radiology. These efforts have been necessarily more or less spasmodic, the character of the work undertaken by different individuals has depended on their interest in some particular phase and there has been little attempt at coordination of effort. The undertaking now in hand is to raise a large "research endowment fund" for systematic initiation and supervision of research work in radiology. The plan does not contemplate the establishment of one large research laboratory in a large center but is to provide for carrying on work through channels already in existence among which are x-ray laboratories of most of the large universities and many privately owned ones. Harvard, Wisconsin, Illinois, Michigan, Iowa, Loyola, Cincinnati, Leland Stanford, Kansas, California, Washington, Rush, and many others have already signified their willingness to cooperate. Much of the money is to be raised by subscriptions of radiologists who are members of the society before any attempt is made to enlist outside support. This would seem to evidence the sincerity and enthusiasm of the members who are backing the plan.

Following is a list of the most important problems before the radiologist today with comment thereon as given editorially in the May issue of the Journal of Radiology:

"1. The biological action of radiation on normal and abnormal tissues.

"2. The dosage required to obliterate each kind of cancer.

"3. Action of massive treatment on the blood forming organs.

"4. Cause of radiation sickness.

"5. What quality of x-rays is best adapted for each kind of treatment.

"6. Determination of the best kind of filter to produce desired rays.

"7. Devising of methods for the prevention of delayed radiation reactions.

"8. Standardization of dosage in accordance with known factors through the employment of a full-time physicist capable of testing machines in place and giving instructions to individual operators concerning biological reactions produced by different dosages.

"Even a cursory examination of these problems will disclose that no other branch of medicine draws so much on all the other sciences as does radiology. It would seem, also, to be an indisputable fact that the practicing radiologist can never hope, as an individual working single-handed, to master all the other sciences to that point where he will be capable of making his own scientific explorations, establishing certain absolute factors, and applying them in the solution of the problems he must inevitably meet as an intelligent and conscientious therapist. On the contrary, his only hope lies in his ability to establish contact with reputable workers in each of the sciences, and by collaboration

with them, to bring to his clientele the ultimate in scientific knowledge as it is developed and established from day to day."

STATE BOARD OF HEALTH NOTES.

"His Acts Being Seven Ages."

The Second Age:

"And then the whining school boy with his satchel

And shining morning face, creeping like snail Unwillingly to school."

The pre-school age of which Mr. Shakespeare tells us nothing—from the age of two to six—is one of the important ages in "this strange eventful history", as it is at this time the youngster is especially liable to the infectious diseases, such as diphtheria, whooping cough, measles, scarlet fever.

Much can be done at this time to save the little ones trouble. Vaccination against smallpox, testing the child's susceptibility to diphtheria, immunizing against diphtheria in those susceptible and discovering diphtheria carriers by the usual cultural methods, hygienic living to hedge against pneumonia and proper feeding to prevent bowel troubles are a few of the measures that should be taken.

At the kindergarten age, the eyes, ears, adenoids and teeth must come in for their share of attention. Many children are backward because they cannot see or hear normally.

The school building should be constructed under proper supervision from basement to the weather vane on the roof. Some states have laws requiring such supervision.

Is it fair to the child that he be compelled to attend school by law or parent, and then have placed next to him a child who is a carrier of scarlet fever or diphtheria? School inspection is making some progress in our better towns and cities, but it is far from common. What about medical inspection to detect the underweight child, which often means tuberculosis, as well as crooked spines, rickets and the thousand ills that we are heir to?

Some states send traveling dentists to give free treatment, thereby saving much suffering in future years from focal infection with its train of evils.

The modern child has none of that "creeping-like-snail" stuff in his. He is rushed to a consolidated school in a high-powered bus or in his own automobile. In the cities he has his bicycle or the street car, and in that school he has his "gym" and cold shower and a topsy-turvy curriculum.

In Shakespeare's day I imagine the age of indiscretion was twenty-five or thirty, but now the Florence Crittenton Home catches them at sixteen. Yet, one can never tell about "flappers," for the prophet of old is quoted as saying, "Because the daughters of Zion are haughty and walk with stretched forth necks, and with wanton eyes walking and mincing as they go and making a tinkling with their feet."

As health officers we cannot but think that the abbreviated skirt catches fewer germs and

less filth than the old style. Let us be thankful that modern science is saving eyesight from the cradle to the grave by first instilling nitrate of silver solution in the eye of the new-born and later by skillful fitting of glasses and by the various operations of the ophthalmologist.

J. W. M.

NOTES ON ST. LOUIS MEETING OF THE A. M. A.

The Golfers will arrive early in order to participate in the Annual Tournament on Monday, May 22nd.

Tuesday evening the opening meeting will be held in the Odeon and arrangements are being made to have the music and addresses transmitted by radio to various parts of the city and to distant cities.

Wednesday evening is given over to banquets such as alumni, fraternal, sectional. On this evening provision is being made to entertain the visiting ladies and those doctors who are not engaged at the alumni and fraternity dinners at one of St. Louis' noted moving picture shows with special musical and other features for the occasion.

On Thursday afternoon the Medical Department of Washington University is giving a special tea on the grounds of the institution. Thursday evening will be given over entirely to the President's reception and it is hoped that as many as possible of the doctors and their ladies will grace the occasion with their presence.

The committee after visiting the offices of the Mayor and the Director of Public Welfare and being assured of their cooperation have decided to reserve until Friday evening the chief feature of their entertainment by giving a special program for the entire association in the unique open air Municipal Opera which has a comfortable seating capacity of ten thousand. The location of the opera in the heart of Forest Park with its special lighting effect made possible by the natural foliage of the forest can be appreciated only by those who visit it at night. It is the hope of the committee that every visitor at the convention will remain in St. Louis through Friday evening.

The Ladies' Entertainment Committee under the leadership of Mrs. Willard Bartlett has arranged to take immediate charge of every lady visitor who may be persuaded to accompany the medical member of the family to the convention. They need have no fear of being left alone while the doctor is attending the scientific meetings for practically every hour of their time has been arranged for.

A special visit to Missouri Botanical Gardens is being arranged and will be an important item in the entertainment program. Among other features to be shown will be an old Italian Herb Garden. St. Louis is justly proud of its world famous Botanical Garden.

Dr. C. E. Burford, 3525 Pine street, is Chairman of the Entertainment Committee.

PHYSICIANS' AID REQUESTED.

The Citizens Military Camp movement which is fostered by the United States Government will be carried on in the summer of 1922 and the training camp for Colorado will be at Denver, the period lasting from July 27 to August 26.

It appears that the government has no funds for carrying out certain features of the work and that it is necessary in sections where no Public Health Officer is at hand to obtain the aid of civilian physicians in making examinations of candidates and administering typhoid and smallpox prophylaxis, all of which are required before the candidate may obtain his transportation to the camp. In some instances civilian doctors have estimated their services at from \$1 to \$15 while in many other instances they were willing to give their services free because of the patriotic character of the work.

A certain county medical society in Texas has drawn up a set of resolutions by virtue of which the members undertake to donate their services in this cause.

It is probable that either through Lt. Col. George Chase Lewis, of the Eighth Corps Area, Fort Sam Houston, Texas, or through Mr. Howard G. Wade, Denver, State Chairman of the Military Training Camp Association, the different County Medical Societies of Colorado will be approached in the hope of securing the passage of a resolution similar to that passed by the Texas Society.

It is for the purpose of giving our members advance information on this matter that this editorial is written. The resolutions referred to follow:

Resolutions Adopted by Bexar County Medical Society, San Antonio, Texas, April 13, 1922.

Whereas, The United States government has tentatively announced the holding of the 1922 summer camps at El Paso, Denver, Fort Sill, and San Antonio of the Citizens Military Training Camps, involving an estimated attendance of about 3,000 students for the period July 27 to August 26, 1922, and the physical examination of several thousand applicants in April and May, and the administration of typhoid, paratyphoid prophylaxis and smallpox vaccination to about 3,500 tentatively accepted students and alternates in June and July for the Eighth Corps Area consisting of Texas, Oklahoma, Colorado, New Mexico and Arizona; and,

Whereas, The project of the Citizens Military Training Camps is a highly patriotic and worthy cause, giving great benefit to the health, physical development, and mental alertness of the future manhood of the nation and is also a most important step in our national protection from foreign aggression at a minimum of expense to the tax payer; therefore be it

Resolved, That Bexar County Medical Society endorses these Citizens Military Training Camps and recommends that its members tender their services to the Commanding General, Eighth Corps Area, Fort Sam Houston, Texas, for the purpose of making, without expense to the gov-

ernment, such physical examinations of candidates for the 1922 Citizens Military Training Camps, as may be required by the War Department, and for the further purpose of administering the typhoid, paratyphoid prophylactic supplied by the government for tentatively accepted students and alternates, or for the administration of smallpox vaccination supplied commercially by the candidate; be it further

Resolved, That a copy of these resolutions be furnished the Commanding General, Eighth Corps Area, for his information, and that copies be sent the Councilors of the State Medical Association and that report of this action be published in the Texas State Journal of Medicine.

THE MEDICAL RECORD PASSES.

April 22nd marked the passing of the last of the old independent medical weeklies—the Medical Record. The final issue, as a separate publication, appeared on that date and announcement was made that the Medical Record had been sold to, and combined with the New York Medical Journal, which appears semi-monthly.

Throughout the fifty-six years of its service to the profession, the Medical Record has had the same publishers and but two editors. Dr. George F. Shrady guided its course for the first thirty-eight years and was succeeded by his assistant, Dr. Thomas L. Stedman, who has long been dean of American medical editors, and widely esteemed.

The publishers, William Wood and Company, state with pardonable pride that many of the most important discoveries and developments in the progress of medicine were first announced to the American profession by the Medical Record, including Lister's method of antisepsis; Koch's discovery of the tubercle bacillus and that of tuberculin; the employment of cocaine in eye surgery; the Roentgen rays; the discovery of the antitoxin of tetanus and that of diphtheria; Madame Curie's discovery of radium and many others.

New and Nonofficial Remedies.

During April the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories: Izal; Izal Disinfectant Powder.

Intra Products Co.: Ven Sterile Solution Mercury Benzoate 1 Cc.

Merrell-Soule Co.: Powdered Protein Milk-Merrell-Soule.

Parke, Davis & Co.: Pertussis Vaccine; Pneumococcus Vaccine (4 Types); Streptococcus Vaccine Polyvalent (Scarlatina); Typhoid-Paratyphoid Vaccine (Prophylactic).

Seydel Manufacturing Co.: Benzocaine-Seydel.

Winthrop Chemical Co.: Iothion; Iothion Oil; Sabromin; Sabromin Tablets 8 Grains.

Acriflavine-Heyl; Proflavine-Heyl: These products are now marketed by the National Aniline & Chemical Co. and the Council has continued the acceptance for New and Nonofficial Remedies under the new firm name.

Original Articles

PNEUMOCOCCUS MASTOIDITIS WITHOUT OTITIS MEDIA.*

L. T. RICHIE, M.D., TRINIDAD.

It choosing this subject for a paper it is not the intention of the writer to present anything new, but to bring up a discussion that will be of benefit to those of us who are limited in the literature on the subject, as I have been unable to find but very little regarding either a hematogenous infection or infection through the eustachian tube and tympanum, without middle ear involvement.

There have been cases reported having a primary infection of the mastoid cells, yet some observers are unable to conceive of an infective agent passing through the tympanum without creating an inflammation, later setting up an inflammatory condition in the mastoid; but it has been proven by necropsies that breaking down of the mastoid cells without signs of middle ear involvement is not an infrequent occurrence.

With cavities rich in bacteria as are the nose and oropharynx, it seems highly probable that we might have bacteria pass through the natural channels to the mastoid, becoming virile only when reaching what is practically a closed cavity, which is poorly supplied with blood, then becoming active, producing a swelling in the mucous lining of the cells and aditus thus forming a closed cavity and preventing an involvement of the middle ear.

Again it is possible to have an infection of the middle ear involving the antrum, the middle ear clearing up, leaving no indication of it having been diseased, there yet remaining a nidus in the antrum that has lain dormant for months or years, to be finally stirred up by an acute pharyngitis, one such case being reported by Sallinger which, when operated, showed no sign of middle ear involvement. We have osteomyelitis in other bones, and Adami says, "The infective agents reach the affected part directly through the blood stream" and the mastoid apophysis being similar to other bones thus attacked, it seems reasonable that this condition may arise through local or systemic causes.

The following cases have been reported:

West.—Mastoiditis without involvement of middle ear, complicated by malaria.

Subject, girl, fourteen years old; admitted March 18, 1919, for one week; swelling behind right ear, no improvement after painting with iodine.

Clinical findings:

1. Hard, non-fluctuating mass, 1½ inches in diameter, behind ear.
2. Auricle pushed forward, standing away from head.
3. Normal membrana tympani, normal external auditory canal, normal hearing.
4. White blood count 14,000.

5. X-ray showed some bone destruction.

6. Operation advised; performed.

Operative findings:

1. On incision pus escaped.
2. On exposing bone small opening found leading into antrum.

3. Entire mastoid broken down; dura and lateral sinus left exposed.

4. Middle ear walled off by granulations; these were not disturbed; drum not opened; no discharge from ear at any time.

Postoperative complications:

1. Chill on third day; temperature rose to 103.5 degrees; W. B. C. 12,000; temperature normal after two hours.

2. Day following, temperature 101 degrees; malaria stain made, negative.

3. Day after, temperature again 103 degrees; another chill; blood smear showed malaria; anti-malaria treatment started.

4. Thereafter temperature never above normal. Examination of pus from wound showed staphylococcus.

5. Healed four weeks after operation.

Miller.—Mastoid abscess without suppuration in tympanic cavity; report of two cases.

Case I. Subject, boy, aged 6, well grown, no physical defects; no previous serious illness; recovering from mild attack of measles; complained once of mild temporary earache; noticed swelling back of left ear.

Clinical findings:

1. Not very marked swelling over left mastoid process.

2. Auriculo-mastoid angle not entirely eliminated.

3. Slight pain and tenderness on pressure over mastoid.

4. Dry external auditory canal; posterior-superior canal thickened, but not distinctly drooping.

5. Decided pain on insertion of aural speculum; painful spot located on posterior-superior canal wall.

6. Schrapnell's membrane pinker than normal, but no further redness or bulging of tympanic membrane.

7. Temperature, 99.5 degrees.

8. Directions for home treatment given; ordered to report next day.

9. Reported on third day; increased swelling; posterior superior canal wall drooping and very tender; no change in appearance of membrana tympani; temperature 99.5 degrees; W. B. C. 13,600. Diagnosis, mastoiditis; x-ray examination advised.

10. Delay of several days; x-ray disclosed mastoid filled with pus; operation performed.

Operative findings:

1. Subperiosteal abscess, pus in mastoid antrum and cells.

2. Cortex perforated just posterior to external auditory meatus.

3. No pus in tympanic cavity.

Comment: Uneventful recovery; perfect hearing followed.

Case II. Subject, male, fifty-two years old. General health good until present attack of

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

slight rhinitis and pain behind left ear for past week. Consulted May 12, 1918.

Clinical findings:

1. Well nourished; no evidence of diseased heart, lungs or kidneys; blood pressure and temperature normal.

2. Swelling back over left mastoid upward towards temporal region and above auricle; pain on pressure over entire mastoid, constant pain over left side of head; slight fluctuation on deep pressure over swelling.

3. Posterior-superior canal wall sagged and very tender.

4. No tenderness in floor nor anterior wall of canal.

5. Membrana tympani slightly reddened in upper portion, apparently thicker, but not bulging nor perforated.

6. No pus in external auditory meatus.

7. Some leucocytosis.

8. Diagnosis: Purulent mastoiditis. Simple mastoid operation and x-ray advised.

9. Operation delayed to May 19.

Operative findings:

1. Periosteal abscess, mastoid and antrum cells filled in with pus and granulations.

2. No pus in tympanic cavity.

3. Mastoid cortex perforated behind spongy spot.

Comment: Recovery uneventful; perfect hearing followed.

Writer's Case.—Gus T., Greek, male, age 36, came to my office February 25, 1921, complaining of sore throat following a tonsil operation four months before. Had influenza one and one-half years ago and rheumatism at times since, with heavy feeling in right side of head for the past five months. No pain and no history of previous ear trouble. Examination showed dripping of mucus post-nasally and hypertrophic rhinitis; tympanic membrane normal, but a slight bulging of posterior superior wall; no tenderness over mastoid process. Posterior end of inferior turbinate and lower border of same were removed, and after treatment for two weeks the condition had not materially changed.

At this time an x-ray examination was made and report of the roentgenologist was as follows:

"Right mastoid pneumatic type. All cells broken down with the exception of two cells at extreme tip and three posterior and superior to the antrum. Sinus in normal position. These findings will admit of a diagnosis of acute mastoiditis."

White blood count was 14,600. Average daily temperature, 99.2 degrees.

In view of these findings, operation was decided on, and on March 15 the usual mastoid operation was performed under ether anesthesia.

Operative findings were:

All cells broken down and filled with a brown viscid gelatinous mass. In the region about the antrum a small quantity of pus was found. The antrum and aditus were filled with dense granulations which were removed. A myringotomy was not performed. Wound was closed in the usual manner with rubber tube drainage.

Convalescence was uneventful and rapid, patient being discharged as cured in seventeen days.

Cultures from the pus found showed pneumococcus lanceolatus.

Conclusions: Mastoiditis can and does occur without apparent involvement of the middle ear.

The x-ray is a valuable adjunct in diagnosis of mastoid conditions.

References.

1. Laryngoscope, Sept., 1920, p. 573.
2. Sou. Med. J., June, 1919, p. 339.
3. Sou. Med. J., Feb., 1919, pp. 105-106.

DISCUSSION.

Frank L. Dennis, Colorado Springs: The consensus of opinion among writers on this subject is that this disease is extremely rare. Most of them admit the possibility of such a condition, but emphasize its rarity and warn us to scrutinize the history and findings carefully in order that a previous middle ear inflammation be not overlooked. I have always been skeptical about the existence of a strictly primary mastoiditis and my experience to date has not yielded a single case. From the reports appearing from time to time in the literature, however, one is forced to acknowledge such a possibility, although a good many of the cases reported as primary probably would not bear close scrutiny and analysis.

There can be but two possible routes of infection, namely: through the tympanum and by way of the blood or lymph stream. The latter route would seem to be, by far, the most unusual and it is, to me, almost inconceivable that infectious material could pass through the tympanum to the mastoid antrum and infect the latter while leaving the former utterly unscathed. A much more rational hypothesis would be that an infection of low grade might involve the middle ear and antrum but would produce such slight symptoms as to be overlooked or disregarded by the patient. The tympanic inflammation might heal owing to tubal drainage while a dormant nidus would remain in the antrum only to be fanned into flame at a later date by some circumstance which would depress the resistance of the local tissues; such, for instance, as a blow or exposure to cold. Hence, if this be the true *modus operandi*, we should regard this as a secondary mastoiditis rather than a true primary affection.

As exemplifying this view I find a case reported by Dr. Samuel Salinger in the Laryngoscope of September, 1920. The report is, in brief, as follows: A boy of eight years appeared with a red painful swelling behind and above the ear and drooping of posterior superior meatal wall, which was said to have developed within forty-eight hours. Preceding this there had been recurrent pain for two weeks. There was a rise of temperature, the drum membrane was dull and opaque and the hearing was impaired. Dr. Salinger elicited a history of a discharge from both ears in early childhood. A paracentesis revealed no pus in the tympanum. The mastoid was opened and the findings were: cortex dense and hard; antrum full of granulations and pus and the aditus narrow. Dr. Salinger says, "while it is possible to have a hematogenous infection within the mastoid cells proper in which the tympanic cavity takes no part, yet it is not an easy matter to entirely eliminate the latter as the primary focus". He refers to the fact that it frequently happens that an infection of the middle ear has actually occurred at some previous time but was of such a mild degree as to have been overlooked or forgotten and advises in every case that a thorough search of the history be made. He rightly decides that in the case he reported the condition was one of quiescent mastoiditis, which lighted up into activity by some intercurrent cause; and concludes by saying, "that it is as truly secondary to otitis media as though it

had manifested itself at the time the ear was discharging."

In the Laryngoscope for May, 1921, Dr. Otto Glogau reports a case of "Primary Mastoiditis with Perisinous and Extradural Abscess". In this case the history is that of an adult with no previous ear trouble or sore throats, although he did have nasal polyps. The story starts with sudden severe pain behind the ear four months previously; the drum membrane incised at that time but no pus obtained and with no relief to his pain. Next a polyp was removed from his nose. The pain continued but it was not till four days before consulting Dr. Glogau that swelling appeared behind the ear. Mastoid operation revealed pus in the mastoid together with a perisinous and extradural abscess.

The Doctor remarked that while it has been demonstrated by post mortem studies that the mastoid cells can undergo necrotic and inflammatory changes without the middle ear being involved, yet quite a number of cases have been reported where symptoms referring to a previous or simultaneous involvement of the tympanum have been overlooked or omitted. His idea of the etiology is that the infection in most cases passes through the middle ear without affecting the latter, and on reaching the antrum finds suitable conditions for growth, the inflammation starts and the concomitant swelling shuts off the middle ear and the infection is thus confined to the mastoid. He does not explain how the infection travels through the middle ear without affecting it. Can it be assumed that the microbes crawl through the tympanum? Is it not more reasonable to suppose that they proceed in the usual way but that the reaction of the tissues to their presence is so slight as to occasion little or no symptoms while within the tympanum and that on reaching the antrum, they lie dormant until something—increased virulence on their part or diminished resistance on the part of the host—causes them to multiply more rapidly and thus evince their presence by tissue changes and symptoms?

A case illustrative of a blood route infection is one reported by H. Marshall Taylor in the Southern Medical Journal for February, 1921. This was a woman suffering for two months with general furunculosis (which, however, did not involve the external auditory meati) caused by staphylococcus aureus. Acute mastoiditis supervened without middle ear involvement. Blood culture revealed staphylococci. Mastoid contained pus in the tip cells but antrum and neighboring cells were healthy. There was no history of previous ear trouble.

Alexander says, "Primary mastoiditis is very rare. It occurs from the entrance of pyogenic factors into the mastoid itself where they cause inflammation, while the other middle ear spaces either remain uninvolved or merely show catarrhal changes of the mucosa."

There are greater chances for it to occur where there has been previous inflammation than where the mastoid has always been healthy.

F. R. Spencer, Boulder: I don't want to do all the talking, but there are two features in this case that I feel are important. One is that undoubtedly we all see cases in which the infection in the middle ear is so mild that it does not attract our attention, but it is there, and the infection of the mastoid antrum takes place secondary to the infection in the middle ear cavity. The other type, which I believe is more important, and which explains the relationship, and there are a few of these cases in the literature, is that where the infection takes place from the nose and throat, or whatever primary focus is responsible for the mastoiditis, through the lymph and blood stream. We are seeing this in many other types of diseases. Dr. Lockhard reported a case before this Society a number of years ago, if I remember rightly, of primary mastoiditis, without involvement of the middle ear, and as the previous speak-

ers have mentioned there have been a number of them in the literature.

Dr. Richie (closing): I don't believe I have anything further, Mr. Chairman, to offer. I thank the gentlemen for the discussion.

THE TREATMENT OF NON-TUBERCULOUS INFECTIONS OF THE CHEST FOLLOWING INFECTION OF THE RESPIRATORY TRACT.*

T. E. CARMODY, M.D., DENVER.

The subject under discussion must necessarily include something concerning etiology, for on this in many cases depends the method of treatment, and we will first discuss the avenues and processes by which infection takes place.

To those present it is unnecessary to more than mention these, but for purposes of completeness we will go into some detail.

Many times infection probably takes place through lymphatics from suppurative conditions above, as from the tonsils, teeth and sinuses, and the excellent work along this line with which such names as Robertson, Wood and Mullin are connected must be considered very seriously. Whether we agree that the larger percentage of chest infections are received in this way or not, we must admit the supply from these sources lays a vast burden on the otolaryngologist if he is to accomplish anything in the prophylaxis of these maladies.

The lymphatics from the tonsil drain into the cervical vessels in the anterior triangle as do also those from the lower teeth, while lymph vessels from the nasopharynx drain into the posterior triangle. The superficial cervical continue downward to the root of the neck, to the apex of the lung and the thoracic duct, while the deep chains descend to the mediastinum and hilum, as amply proven by the experiments of above mentioned men and others, and by clinical evidence as mentioned by New and the author, as well as by post mortem evidence.

Hematogenous infection, while it may be difficult to prove in specific living cases, cannot be denied.

However, we think chest infection by this route occurs much less frequently than the writings of many would have us believe. We may have infection carried from those portions of the oropharynx where there is partial stagnation of secretions and in which we find large plexuses of veins. Here may be a place of entrance for infectious material which could easily pass through the heart to the pulmonary circulation, if infection took place in this way, which it probably does not often do. The location of abscess in the lungs might at least lend weight to that theory, but the history of most cases will be the reverse.

Is it possible that the great number of lung abscesses following tonsillectomy may be caused in this way?

If the contention of Clendening and others is correct, that these are caused by the motor

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

driven anesthetic apparatus, it is probable that they result from the chilling of the lung tissue by cold ether being driven into the alveoli under pressure or even into the tissues. This we know is not true with the apparatus of the same type in which the ether is warmed. While this may be the cause, as many more abscesses have been found following tonsil operations since this form of apparatus has been adopted, it is also true that many more tonsil operations are performed than were with the old anesthetic methods. Furthermore, we do not see postoperative pneumonia that was so much to be feared a few years since.

Infection carried into the lung by foreign bodies will be found the most frequent cause of abscess of the lung and bronchiectasis. That we may have foreign bodies introduced into the lung that are either sterile or at least fail to carry any virulent infection to these tissues, is admitted. As most abscesses follow foreign bodies that have been in situ for some days or weeks, it is possible that pressure necrosis plays a part, also lack of drainage—as cough is ineffective and ciliary action is prevented.

We believe that abscesses following tonsil and adenoid operations may also be called foreign body abscesses for the reason that small pieces of tissue, blood clots or fluids may be aspirated and these are likely to be infected or carry infection with them. In the cases in which the tonsils have not been removed or there has been no other operative procedure in the nose or throat, we could still have infection aspirated as a foreign body in the form of either pus from the sinuses and teeth or caseous plugs from the tonsil. The cavitation which takes place in tuberculosis is very dissimilar, although injury from small foreign bodies may play a part in the formation of the tubercle.

When foreign bodies are removed within a few hours of their lodgment, they usually do not cause much damage, and it has been our experience that the larger bodies which more or less completely fill the bronchus are infinitely worse than sharp objects. We have observed in cases where infection is caused by foreign bodies that even after removal the chest is more likely to be involved on the affected side during subsequent colds. My attention was called to this by Drs. Gengenbach, Kennelley and Amessee, who have followed a number of my patients.

It has been suggested by Wasson and others that we may have a specific organism or group of organisms in these cases. At present we are carrying on work along this line but it has not progressed far enough to draw conclusions.

A question which naturally might suggest itself is what produces the softening of the surrounding tissues to which our attention has been directed by Lynah and Stewart, as well as to the fact that we do not as a rule see a distinct cavity through the bronchoscope.

A point which we have not seen mentioned in the literature on this subject is the apparent distensibility of the bronchi on inspiration which is not seen to any extent in the normal. Some of these bronchi collapse as if the cartilaginous

rings were absent or had lost their resiliency. This probably accounts to some extent for the poor drainage and failure to resolve in chronic cases, the only ones in which this condition is found. We may also find stenosis from granulation and connective tissue, as suggested by Lynah.

Many of these cases show clubbing of the fingers and the oval nail with passive hyperemia, the same as in cases of tuberculosis.

The cases of this series have been aspirated by use of the aspirating pump driven by motor, and by use of a tube with closed end, rounded, to prevent injury of mucosa, which the edge of the ordinary tube is apt to cause. Yankauer's irrigation method has been employed in only two cases and in one of these on only one occasion.

Attempt to outline cavities with bismuth subcarbonate has not been found successful. The bismuth oil of Lynah has not been used.

Granulation tissue has been touched with iodine of from two percent to three percent strength, or with silver nitrate, one percent.

Case 1. L. P., age 32. Tuberculosis with cavity formation for several years. This case was aspirated and washed on two occasions, the last at the request of the patient in 1916. This patient died of a cellulitis of the neck a few days after the second bronchoscopy, done with a local anesthetic, which may have been largely responsible for the death as there was a great deal of coughing in spite of the fact that he was given one-fourth grain of morphine sulphate and one hundred fiftieth grain of atropine.

For this reason some of the earlier cases were given a general anesthetic, but we find that if the morphine is given early enough, the cough is kept under fairly good control.

Case 2. Miss A. S., age 8. Was seen in August, 1916, with the following history:

Three weeks previously she had aspirated a large buckshot since which time she has not been well and has coughed a great deal. On entrance to the hospital she had a temperature of 104.2 degrees. An x-ray examination showed bullet in lower left bronchus with quite a shadow directly above.

An attempt to remove bullet under fluoroscopic bronchoscopy resulted in pushing the body down the bronchus from one-eighth to one-fourth of an inch. Immediately, from the opening of a bronchus superior to this, pus flowed freely into the main bronchus and continued until from one-half to two ounces were aspirated, when it ceased. Further effort at removal was not made. Temperature dropped to 99.2 degrees in four hours and became normal within seventy-two hours. The child's parents refused to allow a second attempt to be made at removal and one year later the body was coughed up. The parents report that this child has had no further trouble.

Case 3. P. M., age 4. Referred by Dr. Giese of Colorado Springs in September, 1920. About eighteen months previously his parents were awakened by a cry and what they explained as

apparent inability to take in air (inspiratory dyspnea).

Tonsils were removed six months ago, but after this trouble was well established. Dr. Giese reports moist râles in base of right lung, which also shows shadow in skiagram. The child's grandmother states that at the time of the accident he was in the habit of chewing gum, and probably went to bed with this in his mouth, which on being aspirated, caused the symptom above stated. At time of examination patient is in fairly good health but under weight for his age. Fingers clubbed; coughs and is restless at night. Patient was bronchoscoped under warm ether and pus aspirated from right lower bronchus. On second aspiration ten days later many flakes came away which it was thought might be particles of gum, but they were not examined. These resembled the flakes coming from tissues in paraffinoma. From this time on improvement has been steady, although he was bronchoscoped again six weeks later and a small amount of pus aspirated. He was reported doing well and gaining in weight within two weeks, although we have not seen him for about three months.

Case 4. C. V., age 22. Referred by U. S. P. H. S. June, 1920, for bronchiectasis. History: Coughs a great deal and raises about 300 cc. of sputum in twenty-four hours, which is practically pure pus. Gassed during service in France. Tonsils not removed. On examination of nose, was found to have a chronic pansinusitis.

Radical double frontal and ethmoid operations performed and maxillary sinuses were both washed. Was aspirated three times at six-day intervals with pus becoming less each time.

Sphenoids opened February 10, 1921. On March 15 marked hemorrhage from left sphenoid sinus, which was checked by packing. Since this time pus has increased somewhat and at next aspiration bronchi were washed with normal saline solution. Whether due to the washing or drainage from the sinuses, there was slight increase of expectoration. He was last aspirated May 27, and hemorrhage resulted after all pus was removed. Bronchoscope was immediately removed but another hemorrhage took place twenty-four hours later, since which time only old blood from cavity has been coughed up, as patient has been kept quietly in bed. This patient has gained twenty pounds in weight since first aspiration and feels well despite the hemorrhage.

You will notice there is no history of tuberculosis and repeated sputum examinations are negative. The hemorrhage in this case was probably due to slight injury from the tube or from the aspirator.

Case 5. L. G., age 25. Referred by U. S. P. H. S. February, 1921, for abscess of the lung, which was located in the right lower lobe. History as to cause negative. Tonsils infected and hypertrophied. Aspirated at six-day intervals but not washed—five times in all. At the time of first aspiration patient was raising from 100 to 150 cc. of pus in twenty-four hours. This has

lessened about 50 per cent, and patient has gained seven pounds.

Case 6. This case illustrates how the history of a foreign body may be ignored. G. C. L., age 28. Referred by U. S. P. H. S. May 20, 1921. Army from May 18, 1918, to July 23, 1920. Given S. C. D. "account chronic bronchitis". History: Prior to service: Typhoid fever, 1906; measles, 1914; no pneumonia. During service: On evening of January 1, 1919, was holding pencil point protector in mouth when he was struck on back by comrade and inhaled protector. (Protector was metal and about one and a half inches long.) Developed severe pain in left lower chest immediately, with paroxysms of cough. Went on sick report next morning. Told about accident but was not believed. Developed "acute appendicitis" and sent to hospital for emergency operation, but at hospital (Evacuation Hospital 11, Verdun, France) a diagnosis of pneumonia was made and no operation performed. Repeated story of accident, no x-ray taken. Was coughing continually and spitting blood. Sent to duty about January 19, 1919. Readmitted to hospital January 25, 1919; diagnosis, "flu". Later developed measles. Transferred March 10, 1919, to Base Hospital 103, Dijon, France. Repeated story and was fluoroscoped, but no foreign body discovered. Transferred to various hospitals in France and then sent to the United States and to General Hospital 19, Oteen, N. C. X-rays taken; no foreign body discovered. Stopped telling of aspiration of pencil protector because story was not credited. Was operated on May 8, 1919, for appendicitis. Transferred to General Hospital 21, Aurora, Colo., August 24, 1919, to January 8, 1920. X-ray diagnosis of foreign body in left lower lobe, and final diagnosis, non-tubercular, after sixty-seven negative sputum examinations. Transferred to Fort Sam Houston for operation of "abscess of lung"; no operation attempted, but was transferred to Walter Reed General Hospital, Washington, D. C., April 24, 1920. On May 27, 1920, fragments of protector were removed through bronchoscope from left bronchus by Dr. Chevalier Jackson at Jefferson Hospital. Patient discharged from hospital and army July 23, 1920, much improved.

However, he notices that every time he gets a cold it seems to affect left lung more than right. Always feels some pain in left chest on deep breathing. Occasionally spits up blood-streaked material. Almost pure blood spit up when he has a cold. Coughs a good deal during the day. Raises about four ounces of sputum in twenty-four hours. Doesn't cough any during the night. Since discharge no hospitalization has been necessary. Patient at present in vocational training, "agriculture".

Constitutional symptoms: Cough with copious, rather foul, thick expectoration; increased by stooping posture or lying with head low. Physical examination: Height, 67 inches; weight, present, 146 pounds; normal, 152; temperature, 98.6 degrees; pulse, 74; time, 10:40 a. m. Color, poor; general nutrition fair. Very marked clubbing of fingers. Chest about normal in contour with prominent clavicles. Heaving apex impulse

in fifth interspace, nipple line. Slight lagging in expansion at left base. Resonance impaired above second rib right and throughout left, particularly over lower left lobe. Breath sounds suppressed over entire left lung. (Suppression marked at base anteriorly.) Variably coarse râles, base to apex on left, with bubbling râles after cough over lower radiations left—especially marked internally to angle of scapula with marked increase in whispered voice in latter area. Right lung presents only a few scattered variable râles. Heart normal in size, but apex displaced slightly to left (adhesions), no murmurs. Pulmonic second sound moderately accentuated. Diagnosis: Bronchitis, chronic, severe, with bronchiectasis; pleurisy, chronic fibrous left base.

Remarks: Possibility of tuberculosis not excluded, but doubtful in view of sixty-seven negative sputum examinations and negative findings on hospitalization as "suspected tuberculosis".

Bronchoscope May 27, and about three ounces of pus aspirated from left lower lobe. Right, although showing large lymph node in skiagram, which was thought at first to be a foreign body, was found entirely normal. It has not been found necessary to remove granulation tissue from these cases, but a silver and iodine solution has caused contraction sufficient to give better drainage.

The position on the table is semi-Trendelenburg or Jackson. It will be found in either of these positions that pus will at times flow out of the bronchoscope and save a certain amount of aspiration.

Powder blown into bronchi has not produced sufficient shadow to show in skiagram.

Catheter will show in cavity and should curl if cavity is large enough and differentiate abscess from bronchiectasis.

The after treatment consists of placing the patient in bed with feet raised from eight to ten inches, and inhalation of compound tincture of benzoin or terebene, the same as we have used for years in tracheotomy cases.

(This article is discussed jointly with the companion article which immediately follows.—Ed.)

RELATIONS OF INFECTIONS OF THE UPPER RESPIRATORY TRACT TO NON-TUBERCULOUS INFECTIONS OF THE CHEST.*

M. D. BROWN, M.D., DENVER.

It is not my intention to go into details either as to the pathology of the non-tuberculous infections of the chest or the extent of such conditions, but to simply state that there are many non-tuberculous infections of the chest, and that a great number of these are associated with infections of the upper respiratory tract.

For your consideration I shall present three types of cases:

1. Bronchiectasis and lung abscesses;
2. Chronic bronchitis;
3. Bronchial asthma.

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

In the study of one hundred cases of lung abscess and bronchiectasis, Wessler says: "In my experience the condition most commonly follows tonsillectomy, and only when the patient is fully under the influence of ether. There can be little doubt that these lung abscesses result with such relative frequency from the aspiration of infected plugs in the tonsillar crypts which are squeezed out when the tonsil is grasped in the forceps. The lodgement of such a plug in a bronchus gives rise to a pneumonia, varying in extent from a small patch up to a whole lobe, with the usual accompanying symptoms. At the point of lodgement of the septic plug the anaerobic organisms set up a destructive inflammation of the bronchus with the formation of a gangrenous bronchiectatic cavity of varying size. It may be small and single or large and multiple, so that it is readily visible with the roentgen ray. Such a cavity lies imbedded in the infiltrated lung, and by its presence and the putrid secretions which it engenders, maintains a chronic irritation of the lung about it. This in a short time results in an indurative pneumonia which is no longer capable of spontaneous resolution."

Grey observed a considerable number of cases in which a provisional diagnosis of tuberculosis had been made. The cases were referred for x-ray examination. In most cases there had been an absence of a complete clinical picture of tuberculous involvement.

In the cases examined there had been, usually, the history of grippe, tonsillitis, or even pneumonia. There were no tubercle bacilli and no characteristic tubercular mottling seen in the x-ray plate in a case of tuberculosis.

Shambaugh states that asthma is often associated with definite pathological changes of the nasal cavity and that this change is most often a hyperplastic ethmoiditis and that a correction of this condition has often a very decided influence on the asthmatic condition. He further states that this relation appears not so much a reflex neurosis as an anaphylactic reaction. This hyperplastic ethmoiditis frequently exists for a long period of years without any tangible evidence. Anatomical variations tending to interfere with the normal ventilation of the ethmoids, especially high deflection of the nasal septum, may sometimes act as an etiological factor in the production of a hyperplastic ethmoiditis. Frequently when a complete exenteration of the ethmoid cells does not relieve these cases it will be found that the frontal and maxillary sinuses are also the seat of infections.

Grant, reporting 107 cases of asthma, states that 68 had marked nasal pathology, 31 had slight nasal pathology, 1 uncertain and 7 normal.

Jesberg, reporting 85 cases of asthma, found that 71 showed hyperplastic ethmoiditis ranging from considerable hyperplasia to complete polypoid degeneration.

Brown reports 27 cases of asthma with co-existing ethmoiditis that had complete ethmoidal exenteration, 6 completely cured, 12 im-

proved, 7 very slightly improved and 2 not benefited.

Webb and Gilbert call attention to the fact that up to 1916 medical literature contained very little of note associating bronchiectasis and chronic bronchitis with diseases of the upper respiratory passages, but this was brought out during the World War by St. Clair Thomson, Rist, Sargent and Mullin with Gilbert, and they suggest the advisability of having x-ray examinations of accessory sinuses where the sputum repeatedly proves negative to the tubercle bacillus, and that few cases of these conditions have been found in which chronic infection of accessory sinuses was not demonstrated.

As to the means of infection, whether lymphatic borne, as shown in the very comprehensive work of Mullin and Gilbert, or spray borne, that is, direct infection as is possible and demonstrated by reports of U. S. P. H. S., does not matter. The fact remains that we do get infections of the chest which are non-tuberculous, and the prognosis of these chest conditions is better when these infections are taken care of.

I wish to report briefly a few cases of bronchiectasis, bronchial asthma and bronchitis associated with bronchiectatic cavities with sinusitis.

Case 1. Male, age 20, reported by Dr. T. E. Carmody; referred by U. S. P. H. S. November 12, 1920. Gives history of trouble following "flu" in 1918. Extensive bronchiectasis with large amount of pus expectorated in twenty-four hours. Has definite clubbing of nails, of fingers and toes. X-ray by Drs. Childs and Crosby—all sinuses, with exception of left frontal, show increased density, which is considered due to a general sinusitis, which is chronic. Operation November 17, 1920; radical frontal, right; drained left frontal; punctured and washed out both antra. Bronchoscoped and aspirated bronchiectatic cavity at various times, thirteen in all. X-ray March 14, 1921, by Drs. Wasson and Bouslog; catheter shows at level of diaphragm.

X-ray April 7, 1921, by Drs. Childs and Crosby; considerable mottling in upper third of each lung; marked increase of hilus shadows at right with numerous calcareous deposits in each hilus. Outline of both sides of diaphragm clear; all sinuses show definite increase in density.

April 11, 1921, opened and drained both sphenoids. Following this there was marked nasal hemorrhage, and following the aspiration May 25, 1921, there was marked hemorrhage from the lung, which was checked with great difficulty.

July 11, 1921, autopsy on guinea pig inoculated May 25 with secretion from bronchi reveals no lesions of tuberculosis—Dr. Hillkowitz. Numerous examinations of sputum reported negative for tubercle bacilli. Wassermann, blood and spinal fluid, negative.

Case 2. Miss L. R., age 22. Referred by Dr. Peterson August 22, 1921. Family history, negative. Influenza in 1919. Pneumonia six years ago, bronchitis following. Large amount of nasal discharge; coughs a good deal; raises

twelve to sixteen ounces of pus in twenty-four hours. Lost ten pounds in past two months. Definite clubbing of fingers and toes. Report of internist: No tubercle bacilli in sputum; extensive bronchitis and small bronchiectatic cavities.

X-ray report August 24, Dr. Stephenson: Left antrum cloudy; other sinuses negative.

August 29, punctured and washed out left antrum; large amount of pus. Condition improved and at this date weight is increased eight pounds. Cough very much improved. Expectoration about six to eight ounces. Did not aspirate but used postural drainage.

Case 3. M. P., age 26; occupation, tailor; born in Austria. Disease contracted in Cleveland, Ohio, April, 1916. Family and previous histories negative. Venereal disease denied.

Present illness: In January, 1916, began with non-productive cough and general weakness. The cough gradually became productive. Since that time has complained constantly of cough and expectoration most of night, with general weakness and some loss of weight. Never had a positive sputum; no fever, no night sweats, no chills. Streaked three times during the entire period. Occasionally has dyspnea. Best weight in 1916 was 145 pounds, and present weight, 123 pounds.

Examination: Shows all systems normal, except for a few fine râles at left base anteriorly. Blood pressure 100-120.

Laboratory findings: Sputum, four ounces in twenty-four hours, muco-purulent, negative for tubercle bacilli on six examinations and two antiformins. Guinea pig injected April 11, 1921; autopsy six weeks later showed no tuberculosis. Feces examination negative for parasites or tubercle bacilli; Wassermann negative. Blood examination: R. B. C., 4,200,000; W. B. C., 10,200; polynuclears, 61 per cent; lymphocytes, 20 per cent; large mononuclears, 15 per cent; transitionals, 3 per cent, and eosinophiles, 1 per cent; hemoglobin, 80 per cent.

Tuberculin test made April 14, 1921, and later gave no general or focal reactions to 1/10 mg. of OT.

Nose and throat examinations: Pharynx congested and somewhat granular in appearance. Left tonsil submerged, lobulated and cryptic. Right tonsil enlarged, lobulated. Crypts open and some of them filled with pus. Ears negative. Nose shows moderate hypertrophy of middle turbinate on right, giving rise to slight obstruction in breathing. Infantile epiglottitis, arytenoids and cords normal.

X-ray examination: Plate shows upper portion of lungs clear. Hilus thickened more toward right. Thickened trunks running downward to diaphragm on both sides, more extensive on right. X-ray of sinuses gives an opacity of right antrum and right ethmoids.

Antrum opened and drained and ethmoids were exenterated. The chest was very much improved when patient was discharged, but I have not been able to follow the case.

Case 4. C. E. S., age 47. Referred by Dr. T. J. Gallaher June 3, 1920. Family history

negative. Asthma for past three years. Large amount of nasal discharge. Has more nasal trouble during hay fever season. Has been unable to lie down at night for three years. Uses adrenalin and occasionally morphine to relieve dyspnea. Hemoglobin, 90 per cent; blood pressure, 112-84.

X-ray June 3, 1920, Dr. L. H. Moore: Definite cloudiness in right frontal and ethmoids; slight cloudiness left frontal; large abscess at root of right central incisor.

June 4, 1921, first operation. Removal of polypi left ethmoid region. Second operation, radical external frontal, right and left. Third operation, partial turbinectomy, bilateral, and polypi removed.

X-ray October 18, 1921, Dr. Brownlie: Second lateral upper, left, first lateral lower, right, first and second laterals lower, left, dead but not abscessed.

X-ray February 26, 1921, Dr. Stephenson: Right frontal, ethmoids and sphenoid distinctly cloudy. Left frontal clear in lower and inner portion, cloudy in upper and outer portion. Left antrum clear, right somewhat doubtful.

Fourth operation March 2, 1921. Cured ethmoids, opened and drained sphenoids and opened maxillary sinus. Hemoglobin this date 100 per cent. Blood pressure, 122-92. Since this date there has been steady improvement until the advent of Mrs. McPherson, when patient was suddenly cured, since which time asthma has disappeared. Patient goes to bed and sleeps all night without any trouble. He does not require adrenalin or morphine.

In all these cases there was a distinct relationship between the sinus involvement and chest condition, and clearing up the nasal condition improved the chest.

Conclusions.

First—Bronchiectasis and lung abscesses, bronchitis and bronchial asthma are very often associated with infections of the upper respiratory tract, and especially of the accessory nasal sinuses.

Second—Infection is direct in the form of a spray or carried through the lymphatics.

Third—It is impossible to improve these non-tuberculous infections of the chest without taking care of the infection in the upper respiratory tract, and prognosis of these very trying conditions is directly proportionate to the success in taking care of existing infection in the upper respiratory tract.

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DISCUSSION ON PAPERS OF DR. T. E. CARMODY AND DR. M. D. BROWN.

F. R. Spencer, Boulder: We have had the pleasure of seeing a number of cases in which the primary focus of infection was in the sinuses and we have been gratified with the results obtained. One of the French surgeons first called our attention to the fact that bronchitis and bronchiectasis were thought to be due to infection of the upper respiratory tract. Some cases which were diagnosed as tuberculous were sent back from the front and proved to be nontuberculous cases, due to septic infection. Usually there is very little improvement in the pulmonary disease until the primary focus of infection is properly treated. This often means, as Dr. Brown has stated, the opening of one or more of the sinuses and the removal of polypi. The earlier recognition by internists of the relationship between the infection in the lower and the upper respiratory tracts will result in earlier diagnosis. The late cases are only slightly improved and have not been very greatly benefited by any treatment. I think it has not been very many years since the average internist regarded a case of bronchiectasis as offering very little chance of improvement. Now, if the cases are properly handled they will almost all show some improvement and the incipient cases may be cured.

Arnold Minnig, Denver: I hoped that something might be said in this session about some other treatment of some of these infections. In the February, 1921, number of *The American Journal of Roentgenology* there is given a treatment of bronchiectasis and pulmonary abscess by bronchoscopically locating the source of the infection and washing it out or draining it out by suction and then injecting bismuth. I wonder whether you could tell us something about that. We have been treating a small number of cases of pulmonary abscess with good results by the administration of artificial pneumothorax.

Robert Levy, Denver: The subject of Abscess of the Lung, following tonsillectomy under general anesthesia, is an important one, but still its importance has been much exaggerated, because of the fact that even in operations other than tonsillectomy, as well as in operations performed under local anesthesia, a considerable number of cases developing pneumonia and abscesses of the lung have been reported.

The subject is still a mooted one, and too much credit should not be given to general anesthesia in the special operation of tonsillectomy as a cause of pulmonary complications.

J. J. Pattee, Pueblo: I can speak only in a general way upon this point, though my statements apply to a fairly large volume of work. I have not had a lung abscess following a tonsil operation under general anesthesia. I operate almost entirely with a general anesthetic.

Dr. Brown (closing): Dr. Spencer spoke about the report of the Frenchman in regard to the bronchiectasis. I simply made mention of the fact that Webb had reported those in connection with Ritz and Sargent in France, of non-tuberculous infections which were so common and which had been considered as tuberculous. I did not mean to go into the treatment of those cases at all. That was brought out by Dr. Carmody yesterday. I will say that we have watched and aspirated these cases; we have injected iodine, silver nitrate, albuminate of silver, and argyrol or silvol, and we have found that the ones which are simply aspirated do the best. Get rid of the infection. One can do this very well by postural drainage. I do not believe that the injection of anything has materially helped our cases. Dr. Smith misunderstood me. I was simply reporting Dr. Wessler's observations in tonsillectomies following general anesthesia. We have been doing a large number of tonsillectomies in the Public Health Service and have been able to demonstrate that we have had no lung abscesses. We use the Sluder or the Baum instrument almost entirely and we have not experienced lung abscesses after general anesthesia.

Our patients are all placed in semi-Trendelenburg position during operation. I think Dr. Levy is absolutely right in saying that the reports we read on lung abscesses following tonsillectomies are very much exaggerated. I do not think we have had any in Denver. Do you know of any, Dr. Levy, outside of two or three?

Dr. Levy: Two or three.

Dr. Brown: I think that is all I have to say.

RESTORATION OF FUNCTION IN HYDRO-NEPHROSIS.*

O. S. FOWLER, M.D., DENVER.

Some years ago I was present at a clinic in one of the large eastern hospitals, in which a man of middle age was being shown, whose right kidney had been removed two years previously for hemorrhage from stone in that organ; he was now back with the same condition of the left kidney. The surgeon was quite embarrassed in the matter of giving advice or prognosis, for naturally he could not now advise another nephrectomy; in other words, his advice of two years earlier could not now be applied to the same patient. We are confronted with the same difficulty where one ovary or one testicle has been previously removed; nor was this the only surgeon who has been compelled to give advice under similar circumstances. It has, therefore, occurred to me that there might be some question in such cases as to whether it was really good advice to give where one of a pair of glands or organs was involved, if the same procedure could not be applied to the second organ if it became similarly involved, or, to turn the question around, if, by any measures, we may be able to restore the second damaged kidney so that it may maintain life, why should we not have used these measures to attempt to save the first kidney even though it cannot be fully restored to normal? It seems reasonable that we should consider the possibility that the second kidney may become so damaged that the small amount of work done then by the first damaged kidney might be of sufficient help to maintain life, and none of us is able to know the future well enough that he can assure the patient that the one remaining kidney may not become more or less damaged.

There is another phase to this question: It is a well-known fact that when one kidney is removed the other will likely hypertrophy sufficiently to carry on the normal work of both, so it would seem as reasonable to expect that the course of a damaged kidney would be toward recovery as that the good kidney should hypertrophy to supply the needs of the body—that is, if the cause of the damage be corrected, you will at least hold this kidney to its present functional capacity, and I can now state that it will go farther than simply this, for it may go on in restoration to such an extent that it will even become able to do normal or nearly normal work. This I have demonstrated beyond question in the following case:

Mrs. N., aged 28, referred by Dr. Evans of

Fort Morgan, had suffered since childhood with very severe attacks of pain in the left side, and for the past two years had had similar pain in the right kidney region. She now weighed ninety-three pounds, her skin was bronzed and leathery in appearance, the urine scanty and loaded with pus and colon bacilli. Upon ureteral catheterization no urine was obtained from the left kidney, the right apparently doing all the work. Diagnosis: Double pyo-hydro-nephrosis with complete destruction of secreting function of the left kidney. At operation under local anesthesia upon the right kidney, September 26, 1919, the kidney and its pelvis were found to be dilated so that they were, together, about five times the size of a normal organ. The ureter at its beginning was folded upward upon the kidney pelvis and was markedly strictured here where a small blood vessel ran across it. The ureter was freed in its upper half and the pelvis was opened by a small incision through which the stricture was dilated. Drainage by rubber tube was made from this incision, the kidney was fixed in place by fascia and the wound closed. The left kidney was operated upon five weeks later, also under local anesthesia, and was found to be dilated beyond apparent hope of any recovery and was removed, still filled with weak collargol fluid which had been injected forty-two days previously. That there was complete retention here is proven by the fact that no collargol had passed into the bladder during the forty-two days since injection for diagnosis. The patient had a rather stormy convalescence from the first operation, but did well following the second, after which she made a most surprising improvement, gaining in weight in six months to one hundred and forty-five pounds. The skin was cleared, the eyes were bright, and the cheeks were of good color. She felt well and did the most of her housework besides teaching school the following winter—in fact, appearing as healthy as any woman you might meet upon the street. Tests of the urine have shown that the one kidney was functioning normally. To me this was a most surprising recovery for a kidney so badly damaged—in fact, I would not have hesitated at the time to remove the same had she possessed another good kidney.

Since then I have had several other cases similar to this, though none so bad. With some of these nephrectomy has had to be considered, and I have put the proposition up to the patient whether we should try to save the kidney, even though a nephrectomy should prove necessary later, and all have desired me to try to save the organ, and in no case have we had to do a nephrectomy later.

In another case of stone in the parenchyma in which a great deal of mutilation of the kidney pelvis and parenchyma occurred in removing this stone (in fact, there was so much damage to the pelvis that it seemed necessary to remove the kidney), I remembered the patient's request to save the kidney, and I did not remove it. I was pleased to find that the rents apparently recovered; at any rate, the kidney has been

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

functioning normally for a year and a half. From my unexpectedly good results in these several cases I have been convinced that I and others have removed kidneys in the past that could and should have been saved, and with this viewpoint I am quite sure that I will remove few, if any, in the future for hydronephrosis or for pyohydronephrosis, doing nephrectomy only upon those cases which are extremely large, where there is left only a thin shell of the parenchyma which probably could never recover in function to an appreciable degree.

That you may exercise consistent judgment in such as the above cases you must have obtained all possible information upon these kidneys and their ureter in its entire extent; you must know where and how the obstruction occurs, the degree of dilatation of both kidney and kidney pelvis, the position of the kidney when the patient is standing, whether there are stones, and how many and where situated, so that they may be removed with as little damage to the organ as possible; and it is most important to know that there is another kidney of sufficient function to maintain life if you should be compelled to remove the one, for it has occurred too many times that the better of two damaged kidneys has been removed only to have the patient go on and die of uremia.

The operation of nephrectomy is a relatively easy one. The wound will likely heal by first intention and the patient be able to leave the hospital in the time usual for most major operations—on the whole, a very satisfactory procedure from the surgeon's standpoint; but if we will consider the possible misfortunes that may befall this individual in the future, he will not be so well pleased with this procedure, while if we try to save the organ he will probably have drainage to the skin for a considerable period, a longer hospital stay and the possibility of a urinary fistula. But with present methods of diagnosis and proper mode of operation, a fistula is very unlikely, and if we consider that the loss of one kidney is a serious calamity to the patient I believe we shall feel impelled to make the same effort to save the first kidney as we would in operating upon the second one. In this we will have the hearty co-operation of the patients, for they are willing to undergo all the discomforts and loss of time in hope of saving this important organ.

In closing, it may be well for us to remember:

1. That half of a kidney is better than no kidney;
2. That the tendency of a damaged kidney is toward recovery, just as a normal kidney will hypertrophy to take up all the work of the other kidney;
3. That a nephrectomized individual cannot obtain life insurance;
4. That a nephrectomized individual's life will likely be shortened;
5. That such a person's activities of life and recreation will be limited by his fears of complications to the remaining kidney;
6. That the remaining kidney may not take

up the work of both and the patient may die soon after;

7. That this should be regarded as a high type of surgery, for it is conservative and reconstructive instead of destructive.

News Notes

Dr. H. H. Heuston of Boulder has gone East for postgraduate work in pediatrics and will take in the American Medical Association meeting en route.

Dr. Guy Calonge of La Junta, formerly of the Santa Fe Hospital, is now associated with Dr. Herson in general practice.

Dr. M. I. Marshak of Denver, who for the last six years has been superintendent of the Jewish Consumptives' Relief Society, has resigned his position at the hospital. Dr. Marshak expects to locate permanently in the East after taking a rest of some weeks.

Ground has been cleared in Pueblo for the construction of a new office building by the Pueblo Medical and Surgical Clinic.

Dr. E. W. Lazell of Denver was married on April 15 to Mrs. Elizabeth Weed Ketcham.

The members of the Pueblo County Medical Society were guests of the El Paso County Medical Society at Colorado Springs on April 12, a dinner at the El Paso Club being part of the entertainment.

Boulder now has a community hospital with the following doctors on the staff: Dr. C. L. LaRue, Dr. Paul Farrington, Dr. Clay Giffin, Dr. R. J. Groom, Dr. H. H. Heuston, Dr. Walter K. Reed and Dr. W. L. Snair of Louisville.

The marriage on April 15 of Dr. Charles Richard Gowen of Denver to Miss Anita Raab of Belleville, Illinois, has been announced. Their home will be in Denver.

The editor acknowledges receipt of programs for the annual meetings of the following state societies: The Medical Association of the State of Alabama, April 18, 19, 20 and 21, at Birmingham; Mississippi State Medical Association, May 9 and 10, at Hazelhurst; Kansas Medical Society, May 3 and 4, at Topeka.

Under "Medical Societies" will be found resolutions on the death of Dr. J. A. Black passed by the Pueblo County Medical Society. The death of Dr. Black was recorded in the April issue of Colorado Medicine.

Dr. E. Gard Edwards of La Junta was a visitor in Denver May 2, on his way to California after having visited Canada and the New England States.

Dr. Nathan Newcomer of Sheridan, Wyoming, well known in Denver, was a visitor in Denver in the first week of May.

Connecticut has been invaded by smallpox in much the same way as has Colorado. It is stated that among the 247 Connecticut cases there have been 17 in adults vaccinated in infancy ten to forty years ago and that no cases have been reported in vaccinated children.

The editor is advised of the organization in Havana on January 30 of the Sociedad Cubana de Gastro-Enterologia, whose officers are as follows: President, Dr. F. Grande Rossi; Vice-President, Dr. F. Torralbas; Secretary, Dr. F. Salano Ramos; Vice-Secretary, Dr. Pedro Barillas.

Dr. F. H. Weber of Idaho Springs is soon to go east for the summer and a medical director for the Hot Springs Hotel is wanted to take his place either for the summer or permanently, as the applicant may desire. Further information may be had by writing Dr. F. H. Weber, Idaho Springs, Colorado.

Drs. T. E. Carmody and F. P. Gengenbach of Denver attended the meeting of the State Medical Association of Texas at El Paso early in May, both of them participating in the program.

Professor Ernest Fuchs of Vienna, who has been lecturing in this country on pathology of the eye, will be at Denver for a few days about the middle of June. He will make an address before a special meeting of the Medical Society of the City and County of Denver, probably on June 13.

Colorado Congress of Ophthalmology and Oto-Laryngology.

The Colorado Congress of Ophthalmology and Oto-Laryngology will be held in Denver on July 28 and 29, 1922.

M. D. BROWN,
J. M. SHIELDS,
Secretaries.

International Congress of Ophthalmology Held.

On April 25, 26, 27 and 28 was held at Washington, D. C., "An International Congress of Ophthalmology", the successor of a number of such international gatherings held in previous years, the first of which was at Brussels in 1857. This is the first congress actually held since the meeting at Naples in 1909, the one set for Petrograd in 1914 being interfered with by the war. At this year's congress the English representatives extended an invitation for another international congress, to be held in England in 1925. Leading ophthalmologists of many nations were represented, Germany being excepted because at the time invitations were issued peace had not yet been declared between that country and the United States. The official languages of the congress were English, French and Spanish.

Colorado was represented by the following eleven ophthalmologists: Denver: Wm. H. Crisp, W. C. Bane, D. A. Strickler, Geo. F. Libby, Edward Jackson, W. C. Finnoff, D. G. Monaghan, E. E. McKeown, J. A. McCaw; Colorado Springs: E. R. Neeper; Boulder: F. R. Spencer.

Dr. Edward Jackson of Denver was very active in the affairs of this congress, being vice-chairman of the General Committee and chairman of the Committee on Scientific Business.

Dr. Wm. H. Crisp gave a lantern slide demonstration of the crossed cylinder test for astigmatism; Dr. W. C. Finnoff exhibited pathologic specimens demonstrating original research on tuberculosis as it appears in the eye; Dr. John A. McCaw demonstrated a rotating campimeter for mapping parametral scotomas.

Following the International Congress of Ophthalmology, May 1, 2, 3, occurred the Congress of American Physicians and Surgeons. This constitutes an interesting aggregation of some fourteen component American societies representing all branches of medicine and several allied activities. First-hand information on the details of this congress and a record of the Colorado representation are not at hand at the time of going to press, but it is understood that the congress was a profitable and enjoyable affair and that Colorado was well represented in the attendance.

Mountain States Conference of Catholic Hospital Association.

The second annual meeting of the Mountain States Conference of the Catholic Hospital Association was held at St. Joseph's hospital, Denver, Colo., April 27 and 28, 1922. The proceedings on the first day were largely devoted to medical matters, which were freely discussed by the physicians present.

Dr. Edward Delehanty, president of the staff of St. Joseph's Hospital, welcomed the delegates in an able address in which he dwelt on the great benefits bestowed on the patients by the introduction of standardization in the hospitals. He showed that the scientific progress of the practice of medicine has been greatly enhanced wherever this regime has been inaugurated.

The relation of the Catholic Hospital Association to the American College of Surgeons was the theme of Dr. J. F. McConnell of Colorado Springs, representing St. Francis Hospital. He traced the genesis of the idea of standardization through the American Medical Association, thence

to the American College of Surgeons and lastly the successful fruition of this ideal through the instrumentality of the Catholic Hospital Association. This body, comprising sixty-five percent of the hospitals in the United States, by adopting the program of higher standards, has rendered a great service to humanity. Dr. McConnell's paper was discussed by Dr. O. M. Shere, representing St. Joseph's Hospital. Followed a paper by Dr. John B. Hartwell of Colorado Springs, representing the Glockner Sanatorium, on "Doctors' Cooperation With the Training School", which contained many valuable points of constructive criticism regarding the bearing of the medical profession toward the overworked pupil nurse. He dwelt on the necessity of exercising patience under provocation also on the feasibility of changing the hours of instruction from the usual ones in the evening when the tired brain longs for sleep. Dr. Hartwell's paper was ably discussed by Dr. Robert Levy (St. Joseph's) and Dr. Louis V. Sams (St. Anthony's).

"The Mutual Interest of Doctors and Hospital Management", was the subject of a paper by Dr. Leonard Freeman, read in his absence by Dr. A. J. Markley, and discussed by Dr. F. M. McCartney of St. Anthony's Hospital.

Besides the papers read by medical men, a very interesting address on "Cooperation Among Sisters' Hospitals" was given by Bishop Tihen of the Denver diocese and one on "Medical Ethics", by Father Robinson, president of St. Louis University.

The second day of the meeting was given over to the sisters for discussion of their own multitudinous problems.

Twenty-two institutions for the care of the sick comprise the hospital membership of the Mountain States section of the Catholic Hospital Association, including the states of Colorado, New Mexico and Arizona.

At the election of officers for the ensuing year, Sister Mary of the Glockner, to whose initiative the section owes its existence, was continued as president; Sister Sebastian of the Mercy Hospital was elected secretary. Mercy Hospital of Denver was chosen as the place of meeting for 1923.

Colorado Hospital Association Organized.

The Colorado Hospital Association, recently organized as a geographical section of the American Hospital Association, has the following officers on its roster:

Dr. R. W. Corwin, president; Dr. G. W. Holden, Rev. Wm. O'Ryan, vice presidents; Gov. Oliver H. Shoup, treasurer; Pliny O. Clark, executive secretary. These officers, with Dr. Charles E. Elliott of Victor, Mrs. Oca Cushman (Children's Hospital), Sister Mary (Glockner Sanatorium), Dr. M. I. Marshak (Sanatorium of the Jewish Consumptives' Relief Society) and Dr. H. B. Green of Boulder make up the board of trustees of the association.

The purpose of this organization is to unite all of those who are interested in the development of the highest standards of hospital administration and to hold a convention each year for the furtherance of this worthy object.

The members of the medical profession are cordially invited to lend their support to this movement.

The executive committee of the Colorado Hospital Association is to meet shortly to decide on the date for this year's convention.

Conference at St. Louis on Industrial Rehabilitation.

The Federal Board for Vocational Education is calling a conference on industrial rehabilitation in St. Louis, Missouri, May 15th, 16th and 17th. This meeting is for state workers in industrial rehabilitation, for persons engaged in work in other state departments, and individuals and agencies interested in the many lines of social endeavor related to industrial rehabilitation.

Nurses Needed by Government.

The United States Civil Service Commission states that there is need for nurses in the hos-

pitals of the United States Veterans' Bureau and the Public Health Service and at Indian schools and agencies. Applications will be received for these positions until further notice.

Full information concerning entrance requirements, salaries, etc., and application blanks, may be obtained by communicating with the United States Civil Service Commission, Washington, D. C., or the secretary of the civil service board at the postoffice or custom house in any city.

Government Needs Laboratory Aid in Bacteriology.

The United States Civil Service Commission announces an open competitive examination for laboratory aid in bacteriology on June 7, 1922. Vacancies in the Bureau of Animal Industry, Department of Agriculture, for duty at Denver, Colorado, at \$900 a year, and vacancies in positions requiring similar qualifications in Washington, D. C., or elsewhere, at this or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

In addition the bonus of \$20 a month granted by Congress will be allowed.

The examinations in Colorado may be obtained at any one of the following cities: Colorado Springs, Denver, Durango, Fort Collins, Fort Morgan, Grand Junction, La Junta, Leadville, Monte Vista, Montrose, Pueblo, Trinidad.

It is required that applicants must have a high-school education or the equivalent, and have had at least one year of experience in a bacteriology laboratory.

Regular application blanks should be obtained.

DEATHS.

Dr. Thomas L. James, for the past ten years a resident of Colorado Springs, died on April 15. He had come to Colorado for his health and was able to carry on practice in Colorado Springs for some six years, but was forced to relinquish his practice several years ago. Dr. James was born at Bridgeport, Alabama, in 1883, and graduated from the University of Tennessee College of Medicine in 1907.

Medical Societies

COLORADO OPHTHALMOLOGICAL.

The regular meeting of the **Colorado Ophthalmological Society** was held on March 18, 1922, in the assembly hall of the Medical Society of the City and County of Denver, Dr. J. M. Shields presiding.

F. R. Spencer and C. L. La Rue, Boulder, presented a woman, aged forty-five years, who had come complaining that the eyes had been aching for one month and that she felt she might be able to get better glasses. There were in each eye small floaters in the vitreous and peripheral vacuoles in the equatorial plane of the lens. The only diseased condition found elsewhere was a chronic tonsillar infection. Discussed by Melville Black and E. M. Marbourg.

F. R. Spencer and C. L. La Rue, Boulder, presented a man, aged forty-two years, whose left eye had on February 27, 1922, been struck by a piece of steel, probably from a steel hammer. Although the path of the foreign body through the crystalline lens at a point corresponding with wounds produced in the cornea and iris was clearly visible, no appreciable opacities in the lens had resulted. On account of discontinuance of the direct current in Boulder, the foreign body had been extracted with the hand magnet by Dr. Finnoff. Discussed by W. C. Finnoff, J. R. McCaw, Melville Black and W. H. Crisp.

F. R. Spencer and C. L. La Rue, Boulder, presented a woman, aged twenty-four years, who had come in October, 1921, on account of gradual loss of vision in the right eye during the previous four months. The right vitreous was full of large floaters and generally hazy, and the fundus details in-

distinct. The diagnosis was not clear, but the condition was thought to be due to tuberculosis of the retinal vessels, and tuberculin had been used. Discussed by Melville Black, W. H. Crisp, W. C. Finnoff and D. H. Coover.

W. C. Finnoff, Denver, showed a man, aged twenty-nine years, with a positive history of syphilis, whose vision had become hazy in both eyes in June, 1921. Ophthalmoscopic examination showed bilateral neuroretinitis with dust-like opacities in the vitreous. Antisyphilitic treatment had been pushed to the limit of toleration without apparent benefit. No other possible focus of infection had been found. Discussed by Melville Black, C. L. La Rue and W. H. Crisp.

J. M. Shields, Denver, presented a man, aged thirty-two years, who dated a falling off in the vision of the left eye from one month after an attack of mumps, complicated by facial erysipelas. There had been a gradually progressive elevation of the lower half of the left retina, and the diagnosis was doubtful as between a simple detachment of the retina and a detachment covering a tumor. Discussed by W. C. Bane, H. R. Stillwill, W. C. Finnoff and W. H. Crisp.

WILLIAM H. CRISP, Secretary.

FREMONT COUNTY.

A meeting of the **Fremont County Medical Society** was held in Florence March 27, 1922, with a small attendance because of the physicians being so busy in attendance upon flu patients. Drs. Andrew J. Baker and R. J. Smith were elected to membership.

Dr. W. T. Little gave an exhaustive report of a case of pneumothorax which showed the advantage of this treatment for tuberculosis.

Dr. R. E. Holmes read a paper entitled "Doctors to Purge Ranks", which elicited a free discussion from all members, but no definite action was taken relative to the suggestions of the reader.

The **April meeting** was held in Cañon City on Monday evening, the 24th, at which time Dr. R. H. Finney read a paper on "Basal Metabolism", viewing the subject from a practical standpoint.

Dr. Otis Orendorff presented two cases—one a forty-year-old female from whom the tonsils had been removed a few weeks previously leaving an extensive adhesion of the left pillar to the base of the tongue. Another case was an eighty-seven-year-old male who had an intracapsular operation for cataract three months previously, leaving a quiet eye and a perfectly clear pupil, but with a visual acuity of only 5/10, due to senile changes in the fundus.

OTIS ORENDORFF, Secretary.

MORGAN COUNTY.

The **Morgan County Medical Society** met in regular session on April 27th for the election of officers for the ensuing year, and such other business as might be necessary.

Before proceeding to business the society was favored by an able address on "Basal Metabolism" by Dr. E. A. Peterson of Denver. A demonstration of the basal metabolism test was given, accompanied by a most instructive lecture, which was thoroughly enjoyed by all present.

The following officers were elected: A. F. Williams, presidents; A. C. Lusby, vice president; N. D. Wells, secretary and treasurer; W. E. Turner of Brush was chosen as delegate to the State Medical Society, with E. E. Evans as alternate. The censors elected were E. R. Clarke and I. J. Clark. On motion the secretary was elected to serve as reporter for the Society.

N. D. WELLS, Secretary.

PUEBLO COUNTY.

At a special meeting of the **Pueblo County Medical Society** held in April, the following action in the form of resolutions was taken on the death of Dr. J. A. Black, long a valued member of this

society and a former president of the Colorado State Medical Society:

RESOLUTIONS.

"Since it has been the will of the Almighty to call our brother physician and beloved friend, Dr. J. A. Black, from our midst; and,

"Inasmuch as Dr. Black has been so faithful in the performance of his professional duties, true to his friends and loyal to his community; be it, therefore,

"Resolved, That we, the members of the Pueblo County Medical Society, in special meeting assembled, do hereby express our most sincere sorrow at his departure, and our sympathy with the bereaved family.

(Signed)

"PUEBLO COUNTY MEDICAL SOCIETY."

H. T. LOW, Secretary.

PUEBLO CLINICAL AND PATHOLOGICAL.

A dinner meeting of the Pueblo Clinical and Pathological Society was held March 8, at 7 p. m., at the Congress Hotel. Forty were in attendance. The following program was carried through:

Paper by J. C. Epler:

Appendicitis in the Middle-Aged and Old.

1. Formerly thought to be very rare.
2. Now believed to be rather common.
3. Two types: (1) Chronic, adherent, kinked, retro-colic, or subserous, attended with all the symptoms which make up the complex of a thin, more or less emaciated patient, with history of chronic gastric disturbance for years, sallow skin, constipation, etc. (2) Second type is divided into two:

a. A true fulminating type, with more or less acute symptoms, but of less severe physical signs than those found in the younger.

b. A more common type; thrombosed and gangrenous, usually containing fecaliths.

4. There seems to be no association between the "a" and the "b" types.

5. One main symptom believed to be common in the "b" type, and that is the predominating symptom, leading towards the belief that the patient is suffering with intestinal obstruction, and that in the distal ileum.

6. Place but little dependence upon the history of a patient who has been laparotomized, with mid-line incision, when he advises that his appendix was removed, provided he was operated longer than five years ago.

7. A plea for a more careful examination, and a definite diagnosis, to the end that many appendices will be found diseased in the old, with an atypical set of symptoms, that have heretofore been frequently overlooked.

Discussion.

T. A. Stoddard: My experience taught me, years ago, that elderly people do have appendicitis. I believe that they have had attacks years before and that they carry a chronic appendix. Acute symptoms come on. At times the patient will tell you that his appendix was removed years ago. We must doubt this statement, however, if the operation occurred eight to ten years ago. Two cases cited in which the statement was made but operation showed appendix had not been removed.

Richard Hays: As an x-ray man I do not know that I have much in the way of suggestion. I consider ten to fifteen hours the best time for barium meal.

Other diagnostic points are these:

Is the cecum movable? Is there tenderness over the appendix? If the appendix does not fill there is more likelihood of there being pathology than not. If there is kinking and sectional filling of appendix it suggests pathology. If the appendix is visualized for two or three days after the cecum empties there will be a suggestion of complications.

Philip Work: This interests me from the men-

talidity standpoint. Of course we must seek for the location of foci.

I recall one woman in whom slight symptoms of chronic appendicitis were found; she was operated upon and her dementia disappeared.

W. F. Singer: The appendix, like the tonsils, is a rudimentary organ and subject to the same changes. We must bear in mind that the appendicitis symptoms, in the aged, are very similar to those of intestinal obstruction. Two cases reported to bear out this suggestion.

William Senger: We must also bear in mind that many of these cases give a history of chronic dyspepsia, but thorough examination, in most of these chronic dyspepsia cases, reveals chronic appendicitis. Beware of a silent abdomen following vomiting. I believe our incision in these cases should be well out toward the ileum.

D. E. Hoag: As an anesthetist, it is my opinion that in postoperative pneumonia a larger percentage of the old patients get well than of the younger ones.

H. M. Thompson: I rather feel that in the chronic appendix cases there is a specific affinity for the eye which accounts for the iritis cases in the older patients.

Paper by R. H. Finney:

A Case of Chronic Nephritis With Hypertension.

The case was reported as a type, so common, of chronic nephritis with hypertension, running a course over many years. A man, now thirty-eight years of age, ten years ago entered Minnequa Hospital with acute nephritis and moderate edema. Cause of the condition was supposed to be "La Grippe". Blood pressure at that time was normal. After careful treatment, in bed many weeks, careful diet, etc., patient was relieved of edema, regained strength, and has worked most of the time since; presenting himself at frequent intervals for advice. During the past five years his blood pressure has increased, until now, along with moderate anemia, weakness, frequent epistaxis, and the usual urinary findings, his blood pressure stays about 180 to 200 systolic and 110 to 120 diastolic. He has shown no more edema since his acute course ten years ago. Phthalein output in two hours is now twelve percent.

This case was reported in order to bring out a discussion along lines of better treatment for these cases, a treatment that might prolong life, and at the same time make the patient as comfortable as possible, and enable him to carry on a livelihood.

Chronic nephritis with edema and that without edema were mentioned; the likely results in either type. Causes, or theories of causes were taken up, and after many were considered, it is believed our chief cause comes down to infections or toxins resulting from bacterial invasion.

While kidney tissue may be more or less impaired during and following an acute process, and some earmarks may be left, yet it is believed, at least by the reporter of this case, that if every point of infection can be removed early, a kidney process will likely recover. Repeated attacks of nephritis represent repeated, or new areas of focal infection, and an exacerbation of a chronic process means a new infection, or an old one lighted up.

Hypertension, though not always, is usually associated with chronic nephritis. We must consider vascular disease as well as kidney disease; and prognosis must be based upon both. Repeated blood pressure readings are not needed, and give undue distress to the patient. Usually a persistently low phthalein output, and a high blood urea, mean a bad prognosis, yet single estimations are of no value. Albuminuric retinitis in this group is a very bad omen. We must remember that no method of measuring renal function justifies failure to note carefully variations in the patient to be made out by the eye.

Treatment was summed up in regulating general hygiene; reducing to a minimum all foci of infection, and giving rest to the kidneys. The mind must be occupied, physical strain eliminated,

and encouragement given. Little can be done as direct treatment to the kidneys or blood vessels.

Discussion.

W. F. Singer: I feel that with proper care in these cases the process can be stopped. Some cases can be ambulatory and others should be at rest.

H. T. Low: Some of these cases have hematuria and if we follow them up we will practically always find chronic nephritis. He spoke of Bumpus' experiments and described them.

C. N. Caldwell: I remember one case particularly in which the diastolic rate did not go down in proportion to the systolic. Watch for this. And also be careful not to run the blood pressure down too low or too fast. Fifteen to twenty points is probably enough.

F. J. Peirce spoke of the various changes in the fundi in chronic nephritis. He spoke of it being very difficult at times to say just what a normal fundus is.

H. M. Thompson feels that it is the long-standing infections that are the great factors. He speaks of the Rosenow experiments.

R. H. Finney (in closing): I agree with the statements made by most of the speakers and wish to emphasize that the hypertension must not be brought down too fast.

Paper by D. E. Hoag:

Fainting Following Administration of Somnoform.

The following case was a woman, 35 years of age; weight about one hundred forty-five; well nourished; negative family history; heart sounds normal; Stang test 25 seconds; three cc. of somnoform used with closed inhaler; induction quiet; pupils moderately dilated; mask removed at first snore; six teeth removed with some difficulty; consciousness returning while last tooth was being pulled; swallowed once before conscious enough to spit out blood; said that she felt fine, and insisted on getting out of chair; walked across the room, sat down on couch and fainted. Resuscitated with some little difficulty and then vomited swallowed blood. No other trouble. Conclusions: Do not let patients immediately get up after the administration of somnoform.

Discussion.

W. F. Singer suggested that because Dr. Hoag was president of the Mid-Western Association of Anesthetists, his mind was a little off the case.

William Senger: In any of the cases in which he had seen somnoform given he had never seen any trouble like that described. By way of caution he remarked that "in case of a drunk, look out, as he will kick hell out of the ceiling."

D. E. Hoag (in closing): I guess I will have to agree with Dr. Singer, but, boys, I sure thought she was dead. After the vomiting she made a very quick recovery.

Notes From the Library

BOOK REVIEWS.

The Evolution of Disease, by Prof. J. Danysz, Chef de Service, Institut Pasteur, Paris. Translated by Francis M. Rackemann, M.D. Lea & Febiger, Philadelphia and New York, 1921.

Of the many elusive problems in medicine, the subject of immunity is still largely a dark chapter, despite the enormous labor devoted to penetrating the mystery. Much of the progress made in medicine can be traced to the quest for the solution of this great enigma. Why disease is the victor in one case and the vanquished in the other has always been a ripe subject for speculation and for experiment.

The volume of Danysz, comprising some two hundred pages, is a resumé of the current theories

of immunity, with comments by the author and an endeavor to formulate deductions of his own.

After a brief exposition of Ehrlich's and of Metchnikoff's theories, he points out the inadequacy of each to explain the mechanism of infection and of cure. He conceives "the process of immunity as a necessary reaction of the whole organism against each and every substance which is not a part of the organism and which is introduced into its interior in any way whatsoever."

The author lays great stress on the principles of Colloid Chemistry as going far to explain the complicated process of immunity reaction. Illustrative of his views, he devotes a chapter to the action of the arsenobenzenes in vitro and in vivo.

The evolution of some of the infectious diseases and the mechanism of the infection are then taken up in detail, separate chapters being devoted to Diphtheria, Tuberculosis, Typhoid Fever and Cholera.

The discussion on anaphylaxis reviews the various theories on its causation and dismisses them with the comment that "all these different ideas are only plays on words" and that to "explain these things there has been created a complicated and barbarous terminology which has incidentally the great inconvenience of giving grand illusions with a precision which does not exist."

In anaphylaxis, too, he seeks for a solution in the colloids. All antigens and antibodies are substances in a colloidal state. They are albumins and consist of "micelles" or elements, formed by the union of various aminoacids. The difference in arrangement of the micelles is what determines the particular kind of albumin. The entire thesis of the author is based on the idea that any albumin, whether nutritive or toxic, when introduced into the body is digested—split into its amino-acids. The toxic albumins stimulate the cells to produce antibodies in excess.

The gist of his argument is that "heterogeneous particles are dissociated when they come into a medium foreign to themselves and this process of intracellular dissociation is the origin of simple immunity on the one hand or immunity-anaphylaxis on the other according to the rate of reaction produced and according as the formation of antibody in excess neutralizes antigens outside of the cells."

The work, while by no means fascinating reading, does stimulate thought in a field prolific of speculation. Credit is due the translator for putting the thoughts of the author into good English without the introduction of too many Gallicisms.

P. H.

Infant Feeding. By Clifford G. Grulee, M. D., L.L.D., Associate Professor and Acting Head, Department of Pediatrics at Rush Medical College. Fourth edition, thoroughly revised, Octavo of 397 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, \$4.50 net.

Grulee's *Infant Feeding*, used as a text book in many medical schools, especially in the Middle West, contains in the fourth edition references to the numerous valuable contributions to the subject which have appeared during and since the war. The just popularity of Grulee's work is due to the practical simplicity of the author's feeding instructions combined with his impartial scientific attitude toward the many questions still unsolved in the relatively new art of infant feeding. Where experience seems to have justified arbitrary statements as for instance in the author's insistence upon the four hour feeding interval, there is no lack of positive dictum and practical reasons to go with it.

The chapters on artificial feeding and especially the feeding of the normal infant should be particularly valuable to the general practitioner. As a reference book for medical students and pediatricians, Grulee's book will continue to hold its popularity.

R. P. F.

Colorado Medicine

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Editorial Comment

IS THERE AN UNDERWEIGHT DELUSION?

Some physicians in general practice and some pediatricians have recently been informed by mothers of malnourished children that underweight is a delusion. Authority for this new contribution to the field of preventive medicine comes from a layman, Mr. Charles K. Taylor, writing in the Outlook. The Literary Digest realizing the importance of Mr. Taylor's discovery has abstracted the article at some length.

Mr. Taylor of the Carteret Academy of South Orange, N. J., is apparently seriously interested in the problem of nutrition in school boys. He contends that children are "frequently" slender because it happens to be their family or racial type. He condemns our worship of the average, implying that children cannot be made to conform to any norm, either physical or mental, and that educational efforts in that direction are not only irrational but harmful to the child. It is the grain of truth in Mr. Taylor's statement which makes his article not only plausible but dangerous. Every student of nutrition—and the profession is today represented by some of the best minds of the country working on this problem—freely admits that "slender" and "sturdy" types exist; furthermore, as has been pointed out by Gray and others, that the private school boys of pure American stock, being educated under more or less ideal health conditions, do not conform exactly to our previously accepted scales of sitting height or stem length and have longer legs than the average less fortunate school boy. However, by allowing a seven percent variation from the scale of Wood for age, height and weight, we find that even the slender type, if physically fit and apparently well nourished, will fall into the average group. The "sturdy" child may be twenty percent above the average and yet, according to Emerson, be none too fat.

The parents of Denver school children have all been notified as to their children's weight as compared to the average for height and age. The work was done by the Denver Tuberculosis Society, employing an expert nutrition worker, who studied under Dr. Emerson, pioneer in this important work. The possibilities of good from such a campaign are apparent to everyone. No parent is disinterested in the fact that his child

is ten to fifteen percent or more underweight, and he wants to know why. Unfortunately, Mr. Taylor's article presents a pleasant sop to the anxious parent and gives the reason why Jimmy is twelve percent underweight. A moment's reflection reveals the fact that Jimmy's grandfather was six feet in height! Unfortunately, also, the present school campaign could not be of the utmost value because no school physicians were available to examine these children and point out to the parents gross physical defects more than sufficient to account for their being twelve percent underweight. Denver, I believe, enjoys the unique reputation of being the only city of its size which has not had school physicians. It is now a generally accepted belief that had our present generation of men who presented themselves to the draft boards and were rejected in the proportion of one in three been examined during the school age, the physical defects found could usually have been successfully corrected. Organic heart lesions, or other sequelae of diseased tonsils, carious teeth, postural defects, have their inception in childhood and deserve attention at that time. That these and similar common physical defects account for much of the malnutrition in Denver schools is evidenced by the results obtained in a few schools where nutrition classes have been formed for the worst cases. Physical examination by physicians has been made, although the children could not be stripped, and some cardiac and some postural defects were missed. However, such a casual examination has revealed the fact that these children have at least an average of five defects and are, therefore, not "free to gain". Only four percent of the children were found "free to gain" from a physical standpoint, and inquiry into their diet and hygiene nearly always proved that underweight was no delusion in these cases. Over indulgence in sweets; eating between meals; insufficient sleep; a poorly balanced diet or a fancied aversion to milk, cereals or vegetables; too many outside activities, such as dancing or music lessons, easily account for the degree of underweight in nearly every case. If anyone would doubt that the physical examination or "history" of these underweight children warrants the diagnosis of malnutrition instead of "type" he should be convinced by the therapeutic test. If the child belongs to a "type", removal of physical obstacles or correction of hygienic or dietetic errors should have little effect upon his weight curve. Visit

one of the nutritional classes and see the charts so that you may be able to convince the parents that underweight is not a delusion. The average gain in these classes has been .50 pounds a week, as compared to the average expected gain of .21 pounds per week.

Therefore, while admitting that various physical types of children exist in our public schools, we cannot admit that underweight is a delusion. On the contrary, the physician who treats the child as a type rather than an individual and who fails to seek physical handicaps or hygienic or dietetic errors so often unsought for, fails in his duty to the child. No greater opportunity is found in the field of preventive medicine than the early detection and correction of the causes of malnutrition in the pre-school and school age. The problem is largely educational and needs the cooperation of every physician. R. P. F.

THE SAINT LOUIS MEETING.

The seventy-third annual session of the American Medical Association convened at St. Louis the week beginning Monday, May 22, with a registered attendance of 5,128, which appeared very small in view of the apparently unusual attendance of the sections as well as the taxing of the capacity of all the hotels.

The weather was obligingly modified from heat by an occasional shower throughout the week.

The program was of unusually high order, and the sections well attended, and all the papers received free and merited discussion.

The opening meeting was held at the Odeon Theater, and was called to order by the president, Dr. Hubert Work of Pueblo, Colo.; addresses of welcome being made by the mayor of St. Louis, Hon. Henry W. Kiel and Dr. William W. Graves, the president of the St. Louis Medical Society. The program was concluded with the introduction and installation of the president-elect, Dr. George E. De Schweinitz, who then delivered the annual address.

The amusements included a delightful trip on the river steamer St. Paul on Friday afternoon, and the session closed with a delightful music and dance program staged at the Municipal Theater, in Forest Park.

The election of officers announced by the house of delegates was as follows: President-elect, Dr. Ray Lyman Wilbur, San Francisco, Cal.; vice president, Dr. Willard Bartlett, St. Louis, Mo.; secretary, Dr. Alexander R. Craig, Chicago, Ill.; treasurer, Dr. Austin A. Haden, Chicago, Ill.; speaker of the house of delegates, Dr. F. C. Warnshuis, Grand Rapids, Mich.; vice speaker of the house of delegates, Dr. Rock Sleyster, Wauwatosa, Wis.; board of trustees (term expires 1925), Dr. A. R. Mitchell, Lincoln, Neb.; Dr. D. Chester Brown, Danbury, Conn.; Dr. Oscar Dowling, Shreveport, La.

An organization was effected of the clinical pathologists in which the executive offices were carried off by Colorado delegates in the persons of Dr. Philip Hillkowitz, as president, and Dr. Ward Burdick, as secretary-treasurer.

A resolution was introduced in the House of Delegates to amend the by-laws in such a manner as to eliminate the section delegates, restricting the house of delegates to only such members as are elected by constituent state organizations. The argument was that certain states which are entitled to only a limited representation may have undue advantage in having one or more sectional delegates to augment their power. The resolution was vigorously opposed by the various sections. It will be voted upon at the next session.

Colorado was represented by one of the largest delegations ever registered at a national meeting, there having been seventy-one members from this state registered. The president, Dr. Hubert Work, was tendered a breakfast by the delegates from his home state Friday morning, May 26, at the Statler roof garden.

The next session will be held in San Francisco and promises to attract a large western delegation. The inference is justified that the concessions in railroad rates were responsible for a larger attendance than usual from western states, and it is the expressed intention of the association to repeat the efforts of the last year in order to gain similar rate reductions for the next meeting. G. A. M.

RESEARCH ON TUBERCULOSIS IN CHILDREN.

As is well known, the question of how and where tuberculosis of the lungs begins has long been a matter of controversy between investigators. We know that the adult type of parenchymatous involvement is rare in children, but extremely fatal when it does occur. There are many who believe that adult phthisis is always a result of childhood infection which has been aggravated in later life by exposure, debilitating disease of any character and various indiscretions which lower bodily resistance; and it is practically proven by autopsy and the radiogram that no one reaches the adult stage without some evidence of tuberculous infection, often of course without any attending symptoms. An opposite view is that adult cases are apt to be of those who pass the adolescent stage without having established immunity through childhood infection. Both theories are reasonable and are not really as antagonistic as they at first seem. They are cited to bring out the point that when we know more about tuberculosis in children we will better understand the disease in the adult.

A number of fairly exhaustive studies have been made by roentgenologists and pathologists, in some instances coordinated fairly well with the work of the internist, but perhaps the most systematic and the best planned investigation of this character is one concerned with diagnosis of tuberculosis in children which has recently been conducted by two committees of the National Tuberculosis Association, and if other baffling phases of tuberculous infection can be attacked one at a time in this manner, much valuable knowledge of the disease will surely be added to our present store.

The committee of internists consisted of Dr. H.

R. M. Landis, University of Pennsylvania; Dr. C. R. Austrian, University of Johns Hopkins, and Dr. K. D. Blackfan, University of Cincinnati. The committee of roentgenologists consisted of Dr. H. K. Pancoast, University of Pennsylvania; Dr. F. H. Baetjer, University of Johns Hopkins, and Dr. H. K. Dunham, University of Cincinnati. In the final summing up of their investigations the conclusion is rather definite that there is no normal standard for children between the ages of six and ten years either with regard to physical signs or the x-ray plate of the chest, and that many physical signs heretofore depended upon are unreliable, such as D'Espine's and Eustace-Smith's signs. Several new conceptions of physical signs put forth by the internists probably constitute the most important results of the study. The committees worked separately and the three members of each committee worked independently of each other, reached their individual conclusions and then met as a committee of the whole and correlated their results.

"The clinical data dealt with were obtained by careful examination of apparently healthy children between the ages of six and ten years. All children who showed signs of disease were excluded from the series. Individuals from various strata of society, foreign and native born, residents of urban and of rural communities, school children and children residing in institutions, children exposed to tuberculosis and some without a history of such exposure, children with and without a history of previous infectious diseases, all symptom-free, and of an approximately normal height and weight for their ages, were studied . . . In all, over 500 children were thus studied and as a result some definite conclusions seem warranted."

It is hoped that a reading of the conclusions referred to will arouse the reader's interest and induce him to obtain the reports in full and carefully digest them. They follow:

Conclusions Reached by the Committee of Internists.

(1) The data obtained on percussion and auscultation of the lungs of normal children show wide variations from a fixed standard. These variations are usual and are considered to be within normal limits.

(2) Inasmuch as the changes referred to are dependent often upon alterations that persist as the residua of past infections of the respiratory tract, it is obvious that a careful anamnesis, with special reference to all infections, is necessary if diagnostic errors are to be avoided. Even a history carefully taken is often unreliable, as minimal infections are soon forgotten by many and among the unintelligent classes even more significant indispositions are not readily recalled.

(3) Failure properly to evaluate these deviations from a fixed standard will often lead to the unwarranted diagnosis of disease and to even less justifiable treatment.

(4) With a proper appreciation of the widest variations that the normal may present from the ideal, the informed clinician is better able

correctly to understand the findings of the roentgenologist, and each, cooperating with the other, is less liable to error.

(5) D'Espine's sign as indicative of enlarged tracheo-bronchial lymph nodes is of little value.

(6) Recognition of and familiarity with the foregoing data is of cardinal and practical importance to every patient, potential and established. Without a proper appreciation of the facts set forth, no intelligent differentiation between a normal and an abnormal respiratory tract can be made.

In brief, to establish the presence or absence of disease, it is imperative that all data—clinical, laboratory and roentgenographic—must be evaluated and correlated and that no one fraction of the evidence be stressed to the exclusion of the others.

Conclusions Reached by the Committee of Roentgenologists.

The Normal Chest. The normal chest of the child from the roentgenologic standpoint is subject to such wide variations within normal limits as to be beyond the possibility of exact description.

Hilum Shadow. The conglomerate shadow commonly called the hilum shadow, when found lying entirely within the inner third or zone of the lung area, can be disregarded (or regarded as normal), except where it is made up of a solid mass of homogeneous shadow giving undoubted evidence that it represents a growth or mediastinal pleurisy.

Calcified Nodes. Calcified nodes at the root of the lung, without evidence of lung disease, are of no significance except as a possible evidence of some healed inflammatory condition, possibly but not necessarily tuberculous. They are a common finding in normal chests.

Density and Thickness of Trunk Shadows. In the normal lung the bronchial trunk shadows are not visible in the extreme apical regions. For convenience of description the remainder of the lung is divided into three vertical zones, extending outward from the lateral border of the spinal shadow to the lateral chest border.

The inner zone contains the root shadows.

The mid zone contains the trunk shadows, gradually fading out into their final subdivisions.

The peripheral zone contains radiating lines from these and fading off before the periphery is reached.

Where in the mid zone or peripheral zone, these shadows do not disappear in the characteristic fashion described, the appearance may be evidence of a variety of conditions, past or present, of an inflammatory nature or otherwise. It may accompany a tuberculous process but is not necessarily indicative of tuberculosis.

Improper or Misleading Terms. The use of the terms "peribronchial tuberculosis" and "parenchyma tuberculosis" is not to be recommended in the interpretation of roentgenograms of the chest. Until corroborated by laboratory or clinical findings, the use of the terms "ac-

tive" and "quiescent" should not be definitely applied to evident lesions demonstrated on plates.

THE COLORADO ASSOCIATION FOR THE PROTECTION OF PUBLIC HEALTH.

Organized in Defense of Animal Experimentation.

If the antivivisectionists succeed in getting the required number of petitioners, their proposed bill, which will prohibit animal experimentation in Colorado, will be upon the ballot this fall, and a vigorous campaign will be carried on by its proponents.

Many doctors are ready to do their part in informing their clientele about the iniquities of the measure, but do not have convincing data at hand and do not know how best to proceed nor what they have to combat from the other side.

For the purpose of opposing the campaign in a systematic way an organization has been formed in Denver under the name of The Colorado Association for the Protection of Public Health. It is not an organization of doctors only but is essentially composed of laymen who see the danger to scientific medicine, to public health and to the animal industry if such a bill should be passed. Neither is the organization a local one; it is to be state-wide, although it has originated in Denver, logically, since it is the state capital and is the hotbed of antivivisection activities. The personnel of the association is not yet completed and the board of directors will be added to as rapidly as possible so as to include, if possible, a representative in most of the towns in Colorado, each such director to be chairman of a local committee in his own community to carry on the plans of the association. By having a working organization of this kind literature can and will be distributed to local committees, and proper and authentic data furnished for disabusing the public mind of the many false representations contained in the antivivisectionists' propaganda. It will also be arranged later on to furnish lecturers to public gatherings in various communities.

The temporary address of the secretary is 608 Majestic building, Denver; the permanent address will later be 505 Imperial building, Fourteenth street and Court place, Denver. The officers, committees and board of directors are as follows; the board of directors to be increased as already stated:

Officers.

Gov. Oliver H. Shoup, honorary president.
A. M. Ammons, president.
Ralph F. Taylor, vice president.
C. T. Burnett, M.D., secretary.
A. C. Foster, treasurer.
Tyson S. Dines, counsel.

Finance Committee.

A. M. Ammons W. N. W. Blayney
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Rt. Rev. J. Henry Tihen, Denver.
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C. W. Swayze, Denver, lecturer to Colorado Grange.
D. W. Ross, attorney, Cañon City.
Mrs. T. E. Lamb, Delta.
E. J. Foreman, D.V.S., Trinidad.
A. Norman Dempsey, president of the Colorado Association of Life Underwriters, Denver.

STATE BOARD OF HEALTH NOTES.

"His Acts Being Seven Ages."

The Third Age:

"And then the lover,

Sighing like a furnace, with a woeful ballad
Made to his mistress' eyebrow."

Now he has an option; if the brow be plucked, he may make his ballad to the dimple in her knee when she has rolled 'em.

Since it seems impossible to stop the oldest profession on earth, why not teach the youth that sexual continence is entirely compatible with perfect health? Why not say:

"Refrain tonight,

And that shall lend a kind of easiness

To the next abstinence; the next more easy;

For use can almost change the stamp of nature,

And either curb the devil or throw him out
With wondrous potency."

Since modern society now discusses things once taboo, and the modern lover can see just what he is getting in a physical way, why not embrace this opportunity to impress upon him, or her, for that matter, the importance of looking into the ancestry of the beloved as well as her mental status. Tell him the story of the Jukes and Kallikak families and about the malodorous line of criminals, prostitutes, thieves, etc., that followed in their wake. Contrast them with the families of Edwards, Wedgewood, Darwin or Galton, with their following statesmen, jurists, professors, physicians and officers in army and navy.

Teach him that gonorrhea is of more danger than a bad cold; that "we know where it starts,

but God Almighty only knows where it will stop"; that syphilis visits its vile effects on to the third and fourth generations; for "Age cannot wither her, nor custom stale her variety".

Typhoid fever now sometimes selects the adolescent for its victim. Bad environment may subject him to tuberculosis. Overdoing may work permanent injury to his heart. All these may be averted by judicious council.

The sacred relationship between doctor and patient may sometimes be put up against the question, "Shall I inform the girl or her parents that her fiancé is suffering from an uncured gonorrhea?" What must he do? The Golden Rule seems to me to be a safe guide in this matter.

Who better than the doctor can tell the youth the word of old Adam?

"Though I look old, yet I am strong and lusty;
For in my youth I never did apply
Hot and rebellious liquors in my blood,
Nor with unbashful forehead woo
The ways of weakness or debility;
Therefore my age is as a lusty winter,
Frosty but kindly."

This is also the age at which he may become very religious; but usually it is recovered from before the next age, i. e., the soldier.

J. W. M.

SMALLPOX RECORD IN DENVER FOR 1922 UP TO MAY 23.

The following statistics, furnished by Dr. W. H. Sharpley, Commissioner of Health, Denver, and copied from the Denver Medical Bulletin, speak for themselves.

	Jan.	Feb.	Mar.	Apr.	May
Total number of cases.	72	47	53	45	27
Total number of deaths.	24	12	20	16	4
Total cases vaccinated.	10	9	14	11	8
Total cases not vaccinated	62	38	39	34	19

History of Those Who Died.

Cases not vaccinated.	24	7	17	15	4
Cases vaccinated	0	5	3	1	0

History of Vaccinated Patients Who Died— When Vaccinated.

January—None.

February—1, 50 years ago; 1, 60 years ago; 1, 48 years ago; 1, 20 years ago; 1, age 72 years, case discovered after death, could obtain no history.

March—1, 65 years ago; 1, 56 years ago; 1, 44 years ago.

April—1, 42 years ago.

May—None.

History of Other Vaccinated Patients Who Contracted the Disease—When Vaccinated.

January—1, 35 years ago; 1 had smallpox previously; 1 had syphilis and diagnosis changed; 1 doubtful diagnosis; 6 after exposure and histories indefinite.

February—1, 5 years ago; 1, 9 years ago; 6, after exposure; 1, when a child.

March—1, 6 years ago; 1, 10 years ago; 1, 20 years ago; 1, 25 years ago; 1, 35 years ago; 1,

44 years ago; 1, 56 years ago; 2, 60 years ago; 1, after exposure; 3, indefinite.

April—2, 20 years ago; 1, 34 years ago; 1, 37 years ago; 1, 47 years ago; 1, 60 years ago; 1, 70 years ago; 1, after exposure.

(It will be seen that no case of smallpox was reported to the authorities in a patient vaccinated within five years, except the cases where vaccination followed exposure—and in such cases there were no deaths.—Ed.)

Original Articles

CHORIONEPITHELIOMA.*

With Reports of Cases, Including One of Spontaneous Cure.

HERBERT A. BLACK, M.D., PUEBLO.

In 1888 Sänger¹ described for the first time a tumor differing from any known neoplasm, and emphasized its seeming peculiar relations to pregnancy. Although others, notably Netzel, 1872; Mayer, 1876, and Chiari, 1877, had observed and reported growths which we now recognize were chorionepitheliomata, yet it would appear from their writings that none of them knew the true pathology or suspected the etiology.

Sänger, at the time he first described the tumor, believed it to be a malignant proliferation of the decidua and classified it as a sarcoma. Williams², in 1895, published the first monograph printed in America on this disease, in which he reported one case and reviewed twenty-four others which he had been able to collect from the literature published up to that time; and a perusal of the writing of two decades ago would convey the impression that it was a rare disease. Cullen³, in his work, published in 1909, states that he had not had a case in his own series. The pathologic findings of this, as of other conditions once considered unusual, we now know to be far from rare and hardly uncommon. Marchand³³, in 1898, demonstrated that chorionepitheliomata were of chorionic and not of decidual origin, and in the main it is to him that credit is due for laying the foundation of our present knowledge of this highly malignant neoplasm. It is interesting to note here that the Obstetrical Society of London decided in 1896 these tumors were only sarcomata of the uterus, a position from which they later retreated, thanks to the masterful contribution to the subject by one of their own members, J. H. Teacher⁴. Although the condition generally follows or is associated with normal or abnormal pregnancy, yet not necessarily is it connected with gestation, for growths in every way identical are encountered in the male⁵ as well as in the female, both prior and subsequently to the procreative zone of the life of woman. Its development at a site remote from

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

placental implantation is another curious incident in its pathology. This and other peculiar features have been the subject of articles of length far in excess of the limitations which would allow presentation before this Society, but the object of this paper will be served if it successfully calls attention to the unsuspected frequency of the disease, and the superlative necessity of an early recognition. The correct early diagnosis of malignant growths is in all cases vital to their successful treatment, but in no class is there frequently less time allowed because of rapid development than in chorionepithelioma.

ETIOLOGY.

Our knowledge of the influence, if any, exerted by race, climate or environment is very meagre, but we do know⁶ that it usually arises from pregnancy, often from leaving behind fragments of chorionic tissue in a case which either went to full term or terminated in a miscarriage or abortion, and particularly if there occurred a degeneration of the placenta or chorion into a hydatid mole.

Williams in 1895 collected, with his own, twenty-five cases. Teacher in 1902 accepted as authentic one hundred eighty-eight. Pollasson and Violet in 1914 collected four hundred fifty-five. Vineberg, up to 1918, was able to collect an additional seventy-eight. Since 1918 the writer has been able to gather fifty-one from an incomplete review of literature up to 1921, which with three of his make a total of five hundred eighty-seven reported cases.

Blacker⁷ states that it appears probable that the cause of the development of chorionepithelioma, conforming as it does to the general law of carcinomatous growth, in that it affects a tissue which if we consider the total period of its life, is already old, will be found not to differ from the cause of a malignant growth in any other part of the body, and that future researches will prove it to consist of some chemical change in the blood of the patient, or in the fluids bathing the tissues of the part affected. Schmauch⁸ evidently had somewhat the same line of thought when he attributed the proliferative tendency of its cells to a deficiency of the resistance of the maternal tissues.

Age Incidence.—From fifty-three percent to sixty percent occur between the ages of twenty and forty years, and there appears to be a tendency to develop near the extremes of menstrual life, which may in part be occasioned by the fact that hydatid mole, often the precursor of chorionepithelioma, is more frequently met with at these periods of life.

Devitsky⁹ reports from the Moscow Clinic an interesting case of a woman seventy-five years of age with a primary growth in the bladder. Menses had ceased at fifty-five, and the patient denied ever being pregnant. In connection with this case is the interesting report of Ries, who found in the myomatous uterus of a woman who had not been pregnant for eighteen years, intact chorionic villi, which demonstrates the extreme length of time during which fetal villi

may maintain their existence in the maternal tissues.

In growths occurring in either extreme of life, the question of a teratomatous origin is to be considered.

Sex Incidence.—While the great majority of cases occur in the female, yet the male sex is not immune. Cook¹⁰ in 1915 lists forty-seven collected cases of chorionepithelioma of the testicles; Waglon¹¹ in 1917 adds twenty additional cases collected from literature up to that time; and several individual cases have since been reported, among which is an interesting one by Jackson¹².

Waldeyer¹³ in 1868 reported a malignant growth of the spermatic cord and compared the outgrowths to the villi of a vesicular mole. Weber¹⁴ reports a case of chorionepithelioma in a male with growths in the retroperitoneal region, liver and lungs.

Schlagenhauser¹⁵ in 1902 first expressed the view that teratomatous growths and chorionepitheliomata of trophoblastic origin were in reality identical and suggested that Marchand's dictum that "no chorionepithelioma can arise without a pregnancy" be altered to "no chorionepithelioma can arise without an embryo or an embryoma or a teratoma."

Time of Development in Relation to Pregnancy.—Ewing gives the period of occurrence as eight weeks after hydatid mole, seven weeks after abortion, and five weeks after labor at term; while Finley states the time of development in the placental site in relation to the expulsion of a hydatid mole, an abortion, or a full term labor, is from two weeks to four and one-half years. Any estimate of time in this connection is unreliable on account of the possibility of development arising from a former pregnancy.

Hydatid Mole Incidence.—Gierce¹⁶ in 1847 first asserted the frequency of hydatid mole following abortions, and it is accepted by all authorities that chorionepithelioma follows molar more frequently than any other form of pregnancy; the percentage varying from thirty-five to forty-eight, according to different writers. Finley states that in two hundred ten cases of hydatidiform mole sixteen percent were malignant, and quotes Briquel's one hundred eighty-one cases of which seventy-six were preceded by hydatid mole.

Kroemer¹⁷ reports three thousand eight hundred fifty-six pregnancies over a seven year period in which there were fifteen hydatid moles, five of which developed chorionepithelioma.

Ectopic Gestation Incidence.—The tubal origin is established by a number of observers, Risel¹⁸ reporting three and five-tenths percent of some three hundred cases as primary of the fallopian tubes, to which Leipmann¹⁹, writing nine years later, adds seven cases. Kynoch²⁰ reports one case as primary of the ovary, and L. Pick²¹ a similar case in a girl of eight and one-half years of age, while in Briquel's series of one hundred eighty-one it followed tubal pregnancy in four cases. In Teacher's series of

one hundred eighty-eight cases it occurred seven times. Finley tabulates twenty-one cases of chorionepithelioma remote from the placental site of the uterus and fallopian tubes. It might be logically expected that this disease would arise from tubal pregnancy because of the frequency of hydatidiform degeneration in that case. According to Meyers²² how many such are found will depend very much upon the care with which the examination is made.

Duration of Latent Period.—This is one of the most interesting features of this most interesting disease, although it is not easily defined and many possibilities of error exist in attempting to definitely establish the period of latency because of the very indefinite knowledge as to how long the fetal elements may remain dormant and yet potentially active in the maternal organism after the termination of the gestation proper.²³

According to Marchand there are no data for determining how long chorionic epithelial cells may remain alive in a closed vessel lumen or healed-over placental site. However, according to Finley the length of time a hydatidiform mole remains in utero has no influence upon the development of a malignancy. The same liability exists in early as in later moles.

Polano²⁴ reports from literature thirty-five cases of long latent period, eleven of which were over five years and one of thirteen years standing.

It is probable that in some of the case reports of short latency the condition had really existed before the termination of pregnancy, possibly developing from normal villi deposited from a previous gestation and aroused to proliferation by some agency of which we are as yet without knowledge.

METASTASIS.

One of the impressive features of this disease is the extent and behavior of the metastatic growths, and it is not unusual for these rather than the original growth to present the first symptoms.

There is in every normal pregnancy a very considerable invasion of both the endometrium and myometrium by fetal elements, syncytial, wandering cells, trophoblasts and probably intact villi, all of which are within a short period normally destroyed by the natural resistance of the maternal tissues. Were it otherwise, every case of pregnancy would be followed by a chorionepithelioma. Teacher states that these growths contain no proper connective tissue stroma or blood vessels of their own, but seem specially to attack the uterine blood vessels and are disseminated by the blood stream, in this resembling the mode of dissemination of sarcomatous growths. Cases where the primary growth is distant from the placental site are explained by Askanazy²⁵ upon the theory that they arise from normal chorionic cells which have been transported by the blood stream during pregnancy and later by some unknown agencies fanned into malignant proliferation at the place of their lodgment.

Hicks²⁶ reports fourteen collected cases of pri-

mary vaginal growths to which he adds one of his own, and the truth of general metastases in this disease is emphasized in a negative way by his observation in this case, that postmortem examination showed no metastases except a small one in the right lung.

So far as the writer has been able to find, literature does not record a single instance of a postmortem failing to show some metastases in cases of chorionepithelioma, although not infrequently the secondary growths have given no clinical evidence.

Practically all the organs have at some time been found involved by metastatic growths—the lungs, vagina, liver, tubes, ovaries and brain are in the order given the most frequently invaded; but occasionally metastases have been recorded as found in the pancreas, spleen, kidney, ureter, heart, bones and pelvic lymphatic glands. In the vagina they are, on account of location, the most frequently diagnosed during life. Here they most commonly occur in small, rather soft masses, and are recognized by their brownish, blue discoloration. They have been compared to and frequently mistaken for thrombosed veins. Vaginal secondary growths have by several observers been noted as the first symptoms of the disease. They grow rapidly and show a marked tendency to undergo necrosis and ulceration which may give rise to free and not easily controlled hemorrhage. In St. Bartholomew's Hospital Museum²⁷ in 1872 there was placed a specimen with a clinical history which showed that the patient had been delivered of a vesicular mole fifteen months before her death, and the postmortem record, which read "Tuberculous masses in the lungs", "Pyæmic abscesses in the liver", "Haematomata of the vaginal walls", along with the history, is quite suggestive of our present-day conception of the etiology and pathology of chorionepithelioma.

Metastases in the lungs may give rise to expectoration of bloody sputum, dullness and pleurisy, and have in more than one instance been diagnosed as tuberculosis.

DEGREE OF MALIGNANCY.

Ewing, Geist and others have attempted to outline a pathologic differentiation of malignant and non-malignant chorionepithelioma, but the opinion of the majority of pathologists appears to be that there are no distinguishable histological characteristics by which they may be determined, the one from the other.

DIAGNOSIS.

As yet, there are no means of making an absolute and early diagnosis of chorionepithelioma, and it is only in cases where the lesion could be directly inspected that a correct pre-operative diagnosis is recorded. Associated as it so constantly is with pregnancy, and having also as one of its chief symptoms hemorrhage, the one symptom most frequently met with in the more usual complications of pregnancy, labor at term and abortion, it is not strange that the diagnosis so often comes first from the laboratory. In hemorrhage following a hydatid mole it should always be suspected. So frequently does the dis-

ease develop in these cases that Vineberg advises in every case of molar pregnancy that a hysterotomy be performed, while others advise a prompt hysterectomy, if after the expulsion of the mole any bleeding whatsoever persists; and all writers caution against the use of a curette. Many observers have noted that in those cases subjected to a curettage the progress has been more rapid, the metastases more general, and the cases more rapidly fatal; and the reason is clear, knowing how likely the curette is to set free particles of the mass and, perhaps, actually carry them into some venous opening. Jellinghaus' advice²⁸ to follow this practice in every case of molar pregnancy and repeat it every two or three weeks for a considerable time, is unsound in theory and dangerous in practice.

In cases developing in the uterus shortly after the termination of pregnancy, the cervical canal is usually open sufficiently to readily admit the finger. Vineberg puts considerable stress upon the feel of the tumor, and states that a hard elevated mass with a depression in the center is almost pathognomonic of chorionepithelioma. The laboratory findings in these cases are the most satisfactory. Schmauch states that the presence of plasmodium when not connected with a villus must always be regarded as a sign of malignancy. If the deeper structure shows invasion by chorionic epithelium, the diagnosis is established. In these cases, as in some others, a negative laboratory report should not take precedence over positive clinical symptoms.

SYMPTOMS.

Hemorrhage increasing in amount and frequency is the most predominant symptom. The bleeding may come on suddenly and in such volume as to quickly jeopardize the patient, or it may be of the oozing variety, gradually increasing in amount. Again, it will be of an intermittent character, as in one of my cases. In this more slow variety there is a gradual development of anemia which later becomes profound. The skin assumes a waxy pallor and the patient shows marked cachexia. Occasionally the disease is noticed following a period of amenorrhea. Vineberg states that this only follows hydatid mole. Williamson and Noon²⁹ report a case occurring sixteen months after the expulsion of a mole before first onset of symptoms, and during the first twelve months of this period menstruation was regular and normal, and for three months there were no menses, but health was seemingly perfect.

Cases are on record where the growth caused premature separation of the placenta with resulting symptoms of placenta previa.

Young³⁰ and Wilson³¹ each report a case of severe intraperitoneal hemorrhage simulating rupture of ectopic pregnancy, and in each case it was found that the tumor had caused the rupture of a pregnant uterus. Many incidents of intraperitoneal hemorrhage have been recorded in cases where the disease has developed from tubal implantation.

Weber reports a case of the rupture of a chorionepitheliomatous growth of the liver re-

sulting in a severe and uncontrolled hemorrhage into the abdominal cavity.

Metastases may be the first symptom, especially in case of vaginal nodules, or pulmonary involvement producing cough and blood-stained expectoration.

PROGNOSIS.

Differing from practically every other form of malignancy, chorionepithelioma may recover even after extensive metastases, and this fact alone compels the exercise of care in the prognosis. Practically all the recoveries have occurred after operative procedure.

The most valuable analysis of cases is to be found in the carefully worked-out statistics published by Teacher. In the one hundred eighty-eight collected cases, ninety-nine were submitted to radical operation with sixty-three recoveries, and among those recovering, eleven had symptoms of pulmonary metastases, and in three a part of the growth was left behind. Eighty-seven cases were not operated upon at all, or were subjected to minor operative procedure, and of these, eighty-three died. In this series there were two cases of spontaneous cure. To the possibilities of such an outcome Schmauch makes this observation: "It has not yet without doubt been proved whether a generalized typical chorionepithelioma may heal or not". However, the third case which the writer reports appears to be a healed case after a lapse of nearly four years. Many cases, by nearly as many observers, have been reported where the removal of the original growth was followed by disappearance of the secondary growths, and the apparent tendency of these to die out is suggested by Teacher as due to the cells apparently being killed by clotting in the hemorrhage, which they themselves had evoked. This is at least a plausible explanation of the cases that, in spite of having quite positive signs of metastases, have been known to recover after removal of the primary tumor.

TREATMENT.

This may be summed up in few words—early and radical operation. Radium has been suggested as a possible agency of value, but its status has yet to be established in the treatment of these cases. Payne³² in a recent article reports its use in a series of three cases with results that would appear to justify its consideration.

REPORT OF CASES.

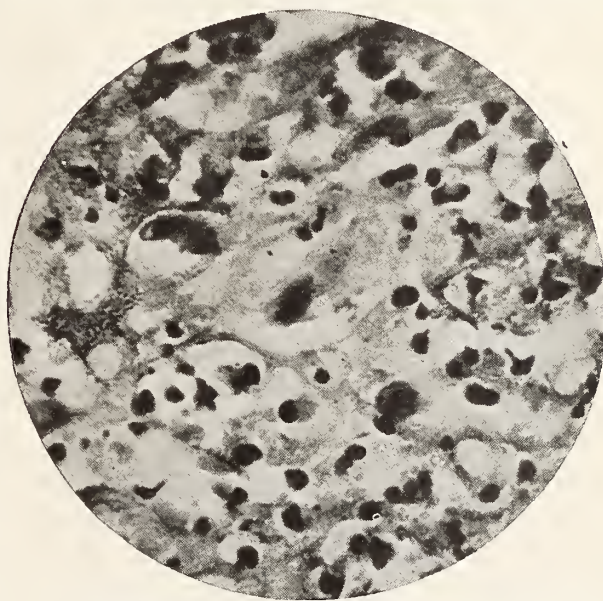
Case of Mrs. O. H., aged 25; married five years; no children; menses usually regular, twenty-eight-day type. Two years previous to coming under our care passed a hydatid mole. Her general health was good. When first seen had been bleeding rather freely for two days, the first indication of menstruation for three months. Examination revealed uterus the size of four months' pregnancy; two days later expelled hydatid mole; uterus curetted; recovery normal, menses normal thirty-two days later, and again after twenty-four days flow commenced and gradually increased in spite of rest in bed. The patient was becoming markedly anemic, and another curettage was not considered desirable.

Hysterectomy was performed seventy days after expulsion of mole. Chorionepithelioma of left cornu of uterus was found. Three years have elapsed since operation and patient reports herself as well.

Mrs. G. W., age 35; twice married, first at age of 19, her husband dying from tuberculosis six years later; remarried two years after death of first husband, and her second husband living and well at time she came under our observation. Denied ever being pregnant. Menses regular, somewhat but not excessively painful, twenty-four-day type, five-day duration. Had been flowing moderately and intermittently for nearly two months; uterus somewhat enlarged, cervix soft and rather patulous. Cured February 28 and tumor found within uterus. Hemorrhage controlled with difficulty. Portion of growth removed with curette showed it to be a chorionepithelioma. Hysterectomy the following day. Uterus and left broad ligament involved. Eight days later patient showed marked mental derangement, which became more pronounced until time of death fifteen days after operation. No autopsy.

Mrs. S., age 37, married at age of 19. Has given birth to six children, all living, youngest 2 years old. In September, menses normal, did not menstruate in October and thought herself pregnant. Three weeks later began to flow, and at this time suffered considerable pain. She believed herself to be having a miscarriage, but was not able to confirm it. When I first saw her she was pale, had lost considerable weight and was weak from loss of blood. Uterus enlarged to about the size of a six to eight weeks' pregnancy, and seemingly there was considerable induration on left side of pelvis. Diagnostic curettage December 29, and the specimen obtained showed a typical chorionepithelioma. Abdomen opened December 31. The left tube, ovary, broad ligament and side of pelvis were involved, together with the sigmoid and lower portion of

descending colon, in an apparently hopeless condition. No attempt was made to remove any structure or tissue. Abdomen closed and an un-



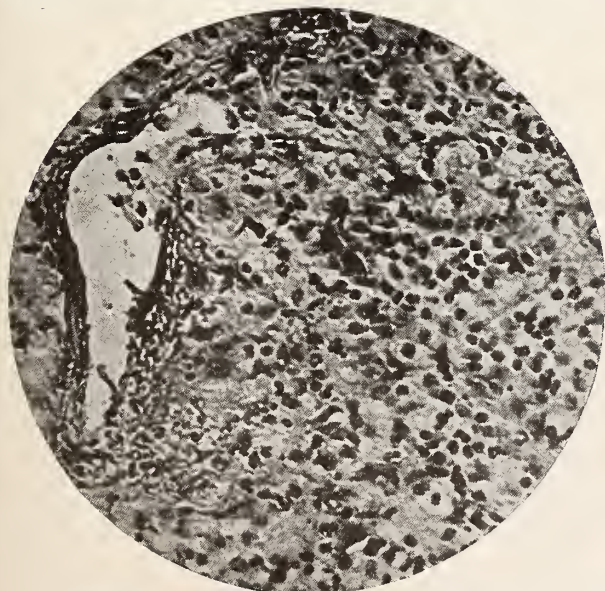
Chorionepithelioma. Case, Mrs. S. Showing both syncytial and Langhans cells. Photomicrograph (x 650).

promising prognosis given family. Operative recovery was without incident. Three weeks following operation tumor mass seemed to occupy practically all of lower left quadrant of abdomen. Patient had up to this time lost weight rapidly, but from this point seemed to maintain about a level condition physically; was able to be up in chair some each day. Her mental condition became greatly changed, showing a strongly depressive delusional condition. This state continued for nearly a year, although after a few months there was noted a slight improvement in her physical condition. During this period she suffered from chest pain, pleuritic in character. During the second year her physical improvement was marked, palpation no longer showing an abdominal tumefaction, and the mental condition appeared entirely restored. Examined six weeks ago, at which time the general appearance was good, though she was a little under weight, but was doing all her housework and, as she expressed it, "feeling well". Left broad ligament seemed a little thickened; otherwise, the pelvic condition revealed nothing abnormal. She stated that the menses, while somewhat irregular, were not excessive either in amount of flow or pain. Apparently, this is one of the rare cases of spontaneous recovery.

CONCLUSIONS.

1. The frequency of the disease should warn every physician, internist or surgeon to be on the alert in cases of persistent bleeding following the termination of pregnancy, and more especially if of pathologic type, for although rare, nevertheless, the heavy mortality rate incident to this form of tumor makes it highly desirable that the condition be diagnosed at an early stage.

2. In no other class of malignancy is there,



Chorionepithelioma. Case, Mrs. S. Section from uterine scrapings. Shows both Langhans and syncytial cells, the latter predominating. Photomicrograph (x 210).

at the onset of the symptoms, so apt to be a mistake in diagnosis, resulting in the delay of treatment until the disease has made such progress as to greatly increase the mortality, and in some cases render attempt at operative measures all but useless.

3. Clinical symptoms may be sufficiently diagnostic to justify operative interference in the absence of positive laboratory findings. "He that always thinks it is too soon, is sure to come too late."

4. Metastases are not a contraindication to operative procedure.

5. Abdominal hysterectomy is the operation of choice.

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DISCUSSION.

L. W. Bortree, Colorado Springs: I am glad to hear this good discussion on chorionepithelioma. I am interested in this disease, in that I had a case coming under my care two years ago the 3d of this coming November. This was the case of a woman, 26, married five years, with one child 2 years old. On July 3, 1919, she had a miscarriage. She does not know about the placenta. On about the first of August she passed a mass which she thought was the placenta but was not sure. I saw her first about November 3. At that time the uterus was enlarged about the size of a three months' pregnancy. She was bleeding a fair amount. From the history and examination I made a diagnosis of chorionepithelioma. She was curetted. The main

mass was found on the anterior wall of the uterus. There was most profound hemorrhage, which was controlled with difficulty by packing. Examination of the tissues showed chorionepithelioma. It was not possible to do any further operative procedure, but on November 14, seven days after the primary operation, a sub-total hysterotomy was done. A pathological examination of the tissues showed a chorionepithelioma. I saw the woman three days ago. She has been perfectly well since. I could find no pathological conditions present in her at this time after a lapse of two years, and after a very unsatisfactory and unscientific method of treatment.

RESISTANCE TO TUBERCULOSIS—STUDY OF THE INFLUENCE OF CARBON DIOXID ON THE TUBERCLE BACILLUS*

HARRY GAUSS, M.D., DENVER.

Pathologists inform us that over ninety percent of all adults have tuberculosis in some form. The disease may be active or latent, quiescent or healed; there may be only a very small healed nodule, but nevertheless, careful routine postmortem examination indicates that practically everyone has had tuberculosis at some time during his life. Nor is the knowledge of tuberculosis of recent origin. Elsewhere we¹ have pointed out that this disease has come down to us practically unchanged for sixty centuries of time, and Givler² believes that it arose millions of years ago as an infection of the lower vertebrates and that it has been transmitted to us as a heritage from our pre-mammalian ancestors.

Today tuberculosis is one of the most vital problems not only from the medical point of view but also economically and sociologically. True, the mortality rate has been slightly diminished by advances in educational, legislative and sanatorium measures, yet the ravages of this disease are still frightfully appalling. According to the Framingham demonstration,³ one person in every hundred is incapacitated through tuberculosis, one percent of the people of the United States; approximately one million persons have active tuberculosis. One million persons are an economic loss to this nation. The disease recognizes neither rank nor station; it exists in all strata of society; it strikes the rich and poor, educated and ignorant; man, woman and child, from the newborn to the centenarian. This disease is responsible for one in every ten deaths, and in certain industrial groups it claims one out of every three. It kills annually about one hundred and fifty thousand persons, and of these the greater number are between the ages of eighteen and forty years. Tuberculosis destroys men and women in their prime.

Practically all Americans of European and Asiatic descent come from the so-called "tuberculized races". Tuberculosis of practically every race in Europe antedates civilization. The American Indian and negro are instances of "non-tuberculized races". When one compares the difference in the epidemiology of tuberculosis between these two groups the contrast is striking. Bushnell⁴ has described this contrast splendidly. He points out that the Chinese are

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

a tuberculized race. The inhabitants of the Chinese towns live under conditions that would appear to result in a heavy mortality from tuberculosis. The population is densely aggregated, the houses are low, small, badly ventilated, badly heated and closely built together; the streets are narrow and crooked, the water supply is polluted, and human feces is quite commonly used as fertilizer; the majority of Chinese are underfed and undernourished according to our standards. In fact, the conditions are such as are calculated to produce a high incidence of pulmonary disease, yet tuberculosis among the Chinese is not more frequent than it is in Europe and in some localities of China it is even less. Quite different is the picture when the natives of a non-tuberculized race are first brought in contact with the disease. When the white man first came to Tai-o-hai there were many thousands of inhabitants; within a few decades they had been nearly annihilated by tuberculosis—yet as a race they were splendid examples of mankind; six feet was their average height; they were strongly muscular, free from fat, swift in action and graceful in repose; they had lived a moderate life remarkably free from excesses until educated by white man.

That tuberculosis today is a universal disease, endemic in all countries, and existing in a wide range of vertebrate animals, is generally admitted by all students of this disease; but when any attempt is made to interpret some of the observed facts such as the difference in the epidemiology between the tuberculized and non-tuberculized races and resolve them to their constituent causes, one reaches a field where there is little agreement. There is a great mass of facts which comprise the science of tuberculosis and most of which are generally admitted and agreed upon, but when an attempt is made to interpret the internal mechanism regulating them, then differences of opinion arise. A great many theories have been advanced in tuberculosis made in cases of tuberculosis with pneumothosis regarding the so-called "immunity" to the disease. Many of these have, however, not stood the test of time.

It is our purpose to examine briefly some of the existing theories regarding resistance or so-called "immunity" in tuberculosis, to classify and comment upon them, then briefly to outline some of our recent investigations in the study of the influence of carbon dioxide on the tubercle bacillus which we believe have disclosed some new facts in the chemical interpretation of the mechanism of the cause and arrest of the disease.

The immunological theory of resistance, which is based on the conception of protection against tuberculosis by the elaboration in the body of humoral antibodies, is the oldest of these groups, and it was advocated by many of the early students of the disease. Many notable names can be found in this list—Koch, Grancher, Richet, Moeller, Bartel, Martin and others. We⁵ have stated elsewhere that if highly specific antibodies exist at all in tuberculosis they yet remain to be demonstrated. No antibodies exist

in tuberculosis similar to the toxins and antitoxins of tetanus and diphtheria; the highly specific agglutinins of typhoid fever, pneumonia and epidemic meningitis; the permanent active immunity conferred by an attack of typhoid, scarlet fever, smallpox or measles; the active immunity conferred by the injection of biological products as in smallpox, rabies, typhoid and diphtheria. No less an authority than Krause⁶ states: "Circumstances have made it obligatory for us to examine carefully and in detail practically every attempt to create increased resistance, and as a result we have come to the conclusion that a preponderance of evidence is against a satisfactory immunity ever having been obtained by dead tubercle bacilli of any type; living tubercle bacilli of as low a virulence for mammals as are avian bacilli; living or dead non-pathogenic acid fast bacilli; tubercle bacilli changed by physical, chemical or biological agents; soluble or insoluble derivatives of tubercle bacilli and the normal serum of animals naturally resistant to tubercle bacilli." The allergic phenomenon observed in tuberculosis is thought to be associated with resistance by some writers, but this is an open question.

Second, there is what might be called the "cellular" theory, which attributes significant functions of resistance to the cells or groups of cells in the body. In this class we have seen at one time or another the lymphocyte, the polymorphonuclear leucocyte, the connective tissue and the wandering endothelial cell emphasized. The researches of Foot⁷, Permar⁸, Karsner and Swanbeck⁹ on the vascular endothelial cell indicates that this cell plays a definite part in the cellular combat against the tubercle bacillus; the exact relation of the cell to resistance to tuberculosis, however, still remains to be disclosed.

Third, there is the chemical theory of resistance which attributes protection to the presence of certain chemical substances not specifically related to the body but probably present in specific or definite amounts. Upon entirely empiric clinical reasoning Weber¹⁰ believed he saw a relation between the carbon dioxide and resistance to tuberculosis. Weber reasoned that the tubercle bacillus invades the body of almost all of mankind, yet only about ten percent of all deaths are due to this disease; individuals who eat insufficiently are disposed to tuberculosis (Brehmer), and treatment benefits only in so far as it stimulates the appetite; carcinoma affects the strong, tuberculosis the weak; diabetics are highly susceptible to tuberculosis because there is a diminished carbon dioxide production as a result of the lack of power to combust or utilize sugar; phthisis becomes arrested or ameliorated during pregnancy in spite of the fact that the reverse might be expected, explicable on the basis of the increased carbon dioxide contributed to the mother by the fetus. This is changed after delivery when tuberculosis again develops with renewed vigor; in cardiac conditions leading to venous stasis and accumulation of carbon dioxide there is a high so-called "immunity" to tuberculosis, while children with tri-

cuspid stenosis die early of this disease; the accumulation of carbon dioxide in the lungs in emphysema is the source of the high relative immunity of these cases to tuberculosis; "hunchbacks" with their condensed thoraces are spared from lung tuberculosis because the lungs have not developed in relative proportion to the other organs and are called upon to dispose of a greater amount of carbon dioxide; primary tuberculosis of muscle is rare because of its high content of carbon dioxide; further the apex of the lung is more readily involved by tuberculosis because it has less carbon dioxide than the other parts; and finally the rest treatment of tuberculosis is beneficial because the horizontal position causes a retention of more venous blood, rich in carbon dioxide, at the apex of the lung than is present in the erect posture, thus imitating Bier's stasis treatment.

That carbon dioxide may have an influence upon the growth of the tubercle bacillus was indicated by the studies of Wherry and Ervin in 1918¹¹. They were studying the effect of gaseous environments upon the growth of bacteria and found that the complete removal of carbon dioxide prevented the growth of the tubercle bacilli even in the presence of all the other gaseous constituents of the air. The bacilli remained in a non-productive state but viable, as shown by guinea pig inoculation two weeks later. They found also that when oxygen and carbon dioxide reached an optimal point, growth starts. Under atmospheric carbon dioxide pressure (7 mm.), there was growth, but at higher pressures (77 mm.) there was not growth of the tubercle bacillus. They called attention to the fact that in a closed system not only does carbon dioxide accumulate but the oxygen supply diminishes. Their experiments although significant in indicating that carbon dioxide would inhibit the growth of tubercle bacilli, were not elaborate enough to give any idea as to the approximate concentrations or conditions under which the inhibition occurred. Experiments recently performed with the gonococcus by Rockwell and McKann¹² indicate that bacteria manifest evidence of respiration before evidence of their growth appears, and growth is not visible until considerable changes in the gaseous environment (in sealed tubes) has occurred. The gaseous constituents changed from carbon dioxide 0.5 percent, oxygen 19 percent, to carbon dioxide 6 percent, oxygen 2.5 percent; in pure hydrogen 3 percent carbon dioxide concentration was attained. Moisture plays some rôle, but is of far less importance than the gases.

The carbon dioxide tension of the tissues may be approximated from the studies made by Haggard and Henderson¹³, who investigated the gas tensions of the abdominal cavity, alveolar air and blood in animals. They state that the carbon dioxide tension of the abdominal air (normally approximating a tension of 35 to 42 millimeters mercury) soon becomes equivalent to that of the pulmonary alveolar air and of the arterial blood, and that under abnormal conditions (experimental acidosis) the carbon dioxide tension in the abdominal air falls in close corre-

spondence with the arterial carbon dioxide tension (as low a tension as 16 to 23 millimeters mercury). In man gaseous studies have been rax to gain information on the proper gas mixture to be used in the artificial pneumothorax treatment of pulmonary tuberculosis. Fortunately the data are often repeated and well worked up so that their accuracy is undoubted. Webb, Gilbert, James and Havens¹⁴ as a result of a study of a large number of cases found that after a short interval of time, regardless of whether nitrogen, oxygen or atmospheric air was injected into the pleural cavity, the composition of the gas rapidly approached that of alveolar air. The carbon dioxide content of the pleural gases varied from about 5 to about 10 percent. Tobiesen¹⁵ found that an exudative pleuritis caused an increased carbon dioxide (to about 10 percent) content of the pleural gases as compared to a non-exudative type (about 6 percent). The carbon dioxide content of the pleural gases increases postmortem in man. Tachau and Thilenius¹⁶, using the more exact methods of gas analysis described by them, corroborated the above findings. In pneumothorax cases without an exudate the carbon dioxide content of the pleural gases ranged from about 6.5 to 8.5 percent, and the oxygen content varied from 1.9 to 6.2 percent, while cases with an exudate contained from 10.5 to 12.7 percent carbon dioxide and an oxygen content of less than 1 percent.

The investigations on the effect of carbon dioxide upon the tubercle bacillus reported in this communication were initiated as a part of a study of the effect of various gases and pressures upon the growth of the tubercle bacillus. The results with carbon dioxide proved so interesting and valuable, however, that the studies were elaborated upon and extended to the animal. The greatest difficulty encountered in these studies was to develop a method suitable for the determination of carbon dioxide in small amounts of gas, not too accurate to be impractical and still of sufficient accuracy to be well adapted for the determinations at hand. The usual methods of analysis for carbon dioxide require comparatively large volumes of the gas to be analyzed and rather bulky and burdensome apparatus. The Hempel apparatus used by Tachau and Thilenius requires about twenty or more cubic centimeters, and the Haldane apparatus used by Webb et al., about thirty or more cubic centimeters for each analysis. These systems of gas analysis contemplate the analysis of carbon dioxide by removing it by absorption, then measuring the decrease in volume of the original gas and then calculating the percentage volume or partial pressure of the carbon dioxide. Direct gravimetric methods have not been placed on an easily working basis presumably for two reasons—first, the great possibility of error from air contamination and consequent alteration, which requires that the analyses be performed in a closed system; and, second, the difficulty of measuring small amounts of carbon dioxide by any gravimetric system, including the use of the ordinary analytical balance. Tashiro¹⁷ has

perfected the biometer by means of which he is able to measure carbon dioxid in almost incredibly small amounts (0.000,000,1 gram). The principle of his method is to note the precipitation of barium carbonate on the surface of a drop of barium hydroxide in a suitably closed system (the biometer) filled with a carbon dioxid-free gas by the use of a lens. It was soon recognized that the needs in the work to be reported lay between the above two extremes and were not adaptable to either. It was necessary to analyze gases containing from 1 to 10 percent carbon dioxid in an available few cubic centimeters of gas mixture sample. We finally succeeded in developing a method of analysis which would measure the carbon dioxid content of one cubic centimeter of air containing 1 percent carbon dioxid. Briefly, the method is as follows: About one cubic centimeter of the gas to be analyzed is drawn into the Van Slyke apparatus and measured on the calibrated scale, a measured amount of saturated barium hydroxid is introduced, the gas and fluid are thoroughly mixed, the carbon dioxid becomes dissolved and then precipitated as barium carbonate; the fluid is then placed in a Hopkins centrifuge tube, is centrifuged, and the packed crystals of barium carbonate measured volumetrically. Previously it had been determined what was the volume occupied by known quantities of the carbon dioxid equivalent as barium carbonate. The procedure and technic are described in detail elsewhere¹⁸.

The Effect of Carbon Dioxid Upon the Growth and Viability of Tubercle Bacilli in Culture Tubes.

For determining the effect of carbon dioxid upon the growth of the tubercle bacillus a special culture tube was devised in which a reasonably accurate concentration of carbon dioxid could be generated, as was revealed by numerous preliminary tests and analyses. The essential parts of this culture tube was a six by one-inch, heavy-walled bacteriological test tube in which a uniform slant (10 cubic centimeters) of culture medium is contained with a sterile cotton plug protecting it against contamination. In the mouth of this tube is contained a one-hole rubber stopper⁵ into which is inserted the generator tube, a small 4x $\frac{1}{2}$ -inch, heavy-walled bacteriological test tube, rubber stoppered, and with a small hole about one millimeter in size blown into the side just below the point of insertion into the large one-hole rubber stopper. The purpose of the hole is to allow easy transfer of the gas from the small generator tube into the large reservoir of the culture tube. With a known air space in the large tube above the culture medium enough sodium carbonate can be placed in the generator tube to which is added an excess of a mineral (dilute sulphuric) acid to generate any amount of carbon dioxid after the medium has been seeded with tubercle bacilli, to give the desired concentration of this gas in air. The procedure was carried out as follows: After planting the tubercle bacilli on the glycerine agar the sterile cotton plug was inserted to a level below that reached by the

generator tube. Into the generator tube was placed an amount of sodium carbonate sufficient to give the desired concentration of carbon dioxid in the volume of gas of the culture tube. The one-hole rubber stopper containing the generator tube stoppered with a solid rubber stopper was then carefully inserted into the large culture tube, care being taken to have no leakage around the rubber stoppers. An excess of dilute sulphuric acid was then drawn into a syringe and injected through the rubber stopper of the generator tube into the sodium carbonate. To allow an escape of the contained excess of air a small hypodermic needle was inserted through the large one-hole rubber stopper into the culture tube and was retained there until air equilibrium had been established and the generation of carbon dioxid ceased. The carbon dioxid, being a heavy gas, remained in the generator tube, or dropped to the bottom of the large culture tube for a sufficiently long period to prevent any loss of this gas, and then would slowly diffuse throughout the culture chamber after the gas-escape needle had been withdrawn. After removal of both needles the gases were held in a practically sealed chamber. In the series in which a complete absence of carbon dioxide was desired, one cubic centimeter of a strong sodium hydroxid solution was placed in the generator chamber to absorb the carbon dioxid as it was formed.

In the series in which atmospheric air was used the tubes were merely stoppered with cotton plugs which had been slightly paraffined and were further covered with paraffine cloth after inoculation. In the series in which pure carbon dioxid was used a continuous stream of pure carbon dioxid, prepared from chemically pure sodium carbonate and dilute sulphuric acid, was passed through the rubber-stoppered culture tubes, the gas entering by one hypodermic needle and the air passing out of the other until it was reasonably assured that all of the air had been displaced by carbon dioxid, when both hypodermic needles were withdrawn. In this entire cultural study a few factors had to be left to take care of themselves, i. e., the solubility of carbon dioxid in the culture medium, a slight escape of carbon dioxid through the needle used for adjusting the gas to atmospheric pressure and a slow solubility of carbon dioxid in rubber to which Haldane¹⁹ has called attention and which was of some consequence in some of the other experiments to be given in this paper. These factors, however, proved of no importance in this part of the study except in the cases where the carbon dioxid content was over 15 percent. Here perceptible loss was noted, especially as revealed by the gas analyses at the termination of the experiment. Since, however, the significant findings occurred in concentrations below 15 percent, these findings proved negligible.

In each gas series, four different strains of tubercle bacilli were studied—an old laboratory culture of avirulent human, a freshly isolated, highly virulent human (Blum), an old laboratory culture of avirulent bovine (Boyine D), and

a recently isolated culture of avirulent bovine bacilli, and of each strain three tubes of 5 percent glycerine agar were inoculated, except in the case of the virulent human strain (Blum), where six tubes were inoculated on account of its poorer growth ability upon artificial medium (glycerine agar). Observations of the growth were made at weekly intervals for one month at 37.5° centigrade, after which the gas contained in two-thirds of the tubes was analyzed for carbon dioxid and the stoppers removed to allow easy access of atmospheric air, and observations continued for another month at incubator temperature to note whether carbon dioxid had merely had an inhibitory action upon the cultures or had actually been tuberculocidal. The results of these cultural studies and analyses are given in Table I.

An examination of Table I reveals that the four strains of human and bovine tubercle bacilli will not grow in the complete absence of carbon dioxid and that, compared with their growth in air upon glycerine agar, air containing as low as 3 percent carbon dioxid definitely inhibits their growth, although their viability is

not appreciably affected by an exposure to this concentration of carbon dioxid in air for a period of a month. Exposure for a month to the higher concentrations of carbon dioxid, 12 percent or more, may be said to be definitely tuberculocidal.

The Effect of the Body Gases Upon the Growth of the Tubercle Bacillus.

In order to study the influence of the gases of the body upon tubercle bacilli under control, the following experiments were performed:

Since the gases of the body contain about 6 percent carbon dioxid, it was reasoned from the in vitro experiments with carbon dioxid that culture tubes appropriately prepared to allow easy access of these gases should show a definite inhibition of the growth of the tubercle bacilli. In the early part of the animal experiments tubes of glycerine agar seeded with tubercle bacilli were placed in the peritoneal cavity, part of them glass sealed for controls and part of them stoppered with sterile glass wool to keep the body fluids out, and with a two-hole rubber stopper to aid in preventing an influx of these fluids. It was soon learned, however, that

Table 1.
The Effect of Different Gaseous Concentrations of Carbon Dioxid Upon the Growth and Viability of Tubercle Bacilli.

Carbon Dioxid Content (Volumetric) Before Incubation	Strains of Tubercle Bacilli	Number of Culture Tubes	Readings Averaged After				CO ₂ Content of Tubes After 1 Month Incubation in Percentage Volumes	Number of Tubes Analyzed and Then Opened	Readings 2 Months After Incubation—1 Month After Removal of CO ₂	
			One Week	Two Weeks	Three Weeks	Four Weeks			Air Access After Removal of CO ₂ †	CO ₂ Still Retained
CO ₂ -free air	Human Avir.	3	—	—	—	—	0	2	+++	—
	Human Vir.	6	—	—	—	—	0	3	+	—
	Bovine Avir.	3	—	—	—	—	0	2	++	—
	Bovine Vir.	3	—	—	—	—	0	2	+	—
Normal Air containing CO ₂ (0.04%)	Human Avir.	3	—	++	+++	++++	No Anal.			++++
	Human Vir.	6	—	—	+	+	No Anal.			++
	Bovine Avir.	3	—	+	+++	++++	No Anal.			++++
	Bovine Vir.	3	—	+	++	++++	No Anal.			++++
CO ₂ , 3% in air	Human Avir.	3	—	—	+	+	3.0*	2	+++	++
	Human Vir.	6	—	—	—	—	2.5	3	+++	++
	Bovine Avir.	3	—	+	+	++	3.0	2	++++	+
	Bovine Vir.	3	—	—	+	+	3.0	2	+++	+
CO ₂ , 6% in air	Human Avir.	3	—	—	—	—	6.0	2	++++	—
	Human Vir.	6	—	—	—	—	5.6	3	—	—
	Bovine Avir.	3	—	—	—	—	6.0	2	+++	+
	Bovine Vir.	3	—	—	—	—	5.5	2	++	—
CO ₂ , 9% in air	Human Avir.	3	—	—	—	—	8.5	2	+	—
	Human Vir.	6	—	—	—	—	7.0	3	—	—
	Bovine Avir.	3	—	—	—	—	9.0	2	+++	—
	Bovine Vir.	3	—	—	—	—	7.5	2	++	—
CO ₂ , 12% in air	Human Avir.	3	—	—	—	—	11.5	2	—	—
	Human Vir.	6	—	—	—	—	11.0	3	—	—
	Bovine Avir.	3	—	—	—	—	12.0	2	—	—
	Bovine Vir.	3	—	—	—	—	12.0	2	+	—
CO ₂ , 15% in air	Human Avir.	3	—	—	—	—	14.5	2	—	—
	Human Vir.	6	—	—	—	—	14.3	3	—	—
	Bovine Avir.	3	—	—	—	—	15.0	2	—	—
	Bovine Vir.	3	—	—	—	—	14.5	2	+	—
CO ₂ , 30%...	Human Avir.	3	—	—	—	—	28.0	2	—	—
	Human Vir.	6	—	—	—	—	30.0	3	—	—
	Bovine Avir.	3	—	—	—	—	24.0	2	—	—
	Bovine Vir.	3	—	—	—	—	22.0	2	—	—
Pure CO ₂ ...	Human Avir.	3	—	—	—	—	55.0	2	—	—
	Human Vir.	6	—	—	—	—	60.0	3	—	—
	Bovine Avir.	3	—	—	—	—	50.0	2	—	—
	Bovine Vir.	3	—	—	—	—	68.0	2	—	—

*The figures in this column are the average obtained from all the tubes analyzed in each set.
†The rubber stoppers were removed for one hour to permit escape of carbon dioxid, and the tubes were then stoppered with paraffine cotton plugs.

growth did not occur in either the sealed or the open tubes. In other words, the glass-sealed tube did not prove to be a control as was hoped. It was, therefore, necessary first to devise a method for growing the tubercle bacillus in the animal body which could serve as a control. After a great many trials the best success was obtained with a large six by one-inch, heavy-walled bacteriological test tube which contained a slant of 5 percent glycerine agar seeded with a young, actively growing strain of human tubercle bacilli. This tube was constricted in the blast flame about three inches above the agar slant to a diameter of about one-fourth to three-eighths of an inch, and the open end flared out. The constricted top of the tube was stoppered with sterile cotton and into this was dropped sterile melted paraffine, not to saturation, however. The top of the tube was then sterilized by gently heating in the flame while the bottom of the tube containing the culture medium and bacilli was sterilized by immersion for five minutes in 90 percent phenol in 95 percent alcohol, the phenol being subsequently removed by rinsing in sterile 95 percent alcohol, the excess of alcohol drained off and the remainder quickly burned off without, however, permitting the contents of the tube to become more than slightly warm. The tubes thus sterilized were placed in a sterile, light-proof container and kept (not more than a few days) until they were inserted into the subcutaneous tissues of the back of the dog. An incision about one to two inches was made into the skin slightly to the right or left of the mid-line of the back. By blunt dissection a pocket was made subcutaneously sufficiently large to hold the culture tube. Those tubes to have access to atmospheric air were inserted into this pocket, and a small hole made about three inches lateral to the original incision just large enough to permit the mouth of the culture tube to pass out. Thus the tube was kept away from the primary incision. The tube was then held in place by means of loops of sterile silkworm gut around the neck and just anterior to the place the tube had been drawn out. The operations were performed under ether anesthesia and absolute aseptic precautions. The buried tubes were prepared similarly to the open tubes except without the flanged end, with paraffine cotton stopper, and sterilized, but were inserted into the subcutaneous pocket with open end first, so that they would be completely buried in the tissues. To hold the tube in place and away from the incision, stay sutures of silkworm gut were used just constricting the bluntly dissected pocket. In all cases the primary incision thus usually healed early and the skin stitches could be removed in from five to seven days. The stay sutures were not removed until the culture tube was taken out at the end of the experiment. The tubes were allowed to remain subcutaneously for about four to six weeks, when comparison could be made. All the dogs were kept in dark cages during the course of the experiment, to rule out any detrimental influence of light upon the cultures. Thus the one set of tubes with external opening and access to

atmospheric air were incubated in the animal body while the buried tubes were incubated at body temperature and exposed to the tissue gases. The accidents encountered in these experiments were fairly common, and included a sloughing out of the tubes before termination of the experiment, which occurred only in those with the external opening, shaking up of the culture medium, breaking off of the tip of the tube, and an infection of the pocket with accumulation of fluid which would flow into and spoil the buried tubes especially. In spite of these difficulties a great many experiments came to term without mishap. About fifty dogs were used in this part of the studies, while in the studies in which tubes were buried intraperitoneally there were used about twenty-eight dogs. In many of the latter, however, two to three tubes were buried in the same animal, while in the subcutaneous studies each animal received only one tube.

It was observed that the cultures of tubercle bacilli buried in the tissues of dogs and permitted to acquire the carbon dioxid concentration of the body are inhibited in their growth, while other cultures similarly buried, except that ingress of atmospheric air was permitted showed no inhibition. Analyses of the carbon dioxid content of the completely buried tubes gave about $5\frac{1}{2}$ percent carbon dioxid. In another experiment, tubercle bacilli were placed in sealed tubes. It was observed that growth became inhibited when the concentration of carbon dioxid in the tubes became approximately 5.5 percent.

Summary and Conclusions.

The theories advanced to explain resistance in tuberculosis may be divided into three classes—the immunological, the cellular and the chemical. Humoral antibodies have failed to explain resistance to tuberculosis and allergic phenomena require further elucidation. The lymphocyte as the important factor is rapidly being discarded; the phagocytic action of the wandering endothelial cell is recognized as important. Both the immunological and the cellular mechanisms of resistance leave much to be explained. The chemical theory of resistance is advanced and deserves consideration.

It has been observed that 3 percent carbon dioxid causes some inhibition of the growth of the tubercle bacillus in the test tube and fifteen percent is tuberculocidal. Tubercle bacilli will not grow in carbon dioxid-free atmosphere. Cultures of tubercle bacilli buried in the tissues of animals and permitted to acquire the carbon dioxid concentration of the body are definitely inhibited in their growth while other cultures similarly buried, except that the ingress of atmospheric air is permitted, show no inhibition.

When viable tubercle bacilli are placed in a closed system their growth becomes inhibited probably before the carbon dioxid which the organisms elaborate reaches a concentration of approximately 5.5 percent, after which respiration of these organisms practically ceases. The end products of metabolism of the tubercle bacillus

inhibit automatically the growth of the organism that gives rise to them.

This study indicates that the concentration of carbon dioxid found to inhibit the growth of the tubercle bacillus occurs normally in the human body, and that this concentration probably does inhibit the growth of the tubercle bacillus, thus establishing this factor as significant in the resistance to tuberculosis.

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DISCUSSION.

W. T. Little, Cañon City: I merely want to ask a question of Dr. Gauss: How does this theory of carbon dioxid inhibition explain the accepted theory of vaccination, where the individual takes within his body either a very small number of tubercle bacilli or an attenuated infection, and apparently becomes partially or wholly immunized for the rest of his life?

E. D. Downing, Woodmen: I had the good fortune to work with Dr. Corper, and when you work with Dr. Corper it is day and night and all the time. From the paper that they have given us you can see how elaborately and how painstakingly the work has been carried on.

The question of tuberculosis in the muscles has always puzzled me, and from time to time I have asked different men about it. From what I can gather, in the Philippines and the Far East, especially among those peoples who have not been naturally vaccinated against tuberculosis, they get lesions in the cervical glands and then the nearby muscles are sometimes infected. I am sorry that Drs. Corper and Gauss jumped on the lymphatic theory of immunity so strongly. I believe that if you work on the blood picture, especially in pneumothorax cases, you can see the lymphocytes change remarkably.

As to the question of humoral immunity, the best authorities are still on the fence, and more work must be done. All of you who have done clinical work know that a case will go along fine with chronic tuberculosis, and then all at once something gives way and he is sick. A chemical theory would be a good thing to explain such an event if you could show that some chemical constituent had

changed in the body. On the other hand, you see many cases that have pulmonary lesions that are clinically stationary, which at the same time have progressive lesions in other organs. I have not been able to figure out how the chemical theory would account for that. Bushnell explains the fact on the idea of organ immunity. For instance, one lung will build up an immunity against tuberculosis and then the other lung will have to wall off the disease. Possibly lesions will start in another organ simultaneously.

From what I have seen of Corper's work, those men who give their whole time to tuberculosis research should be encouraged, and everything the profession can do to help them should be done. Tuberculosis is such a tedious experimental subject that most fellows want to work on something that will give quick returns, and they do not want to give the six months that Corper and his associates are giving to tuberculosis problems.

W. F. Singer, Pueblo: It seems to me that the months of work that these men have put in on this proposition should not be passed over with a smile or sneer. I want to say with reference to this, that as far as research work is concerned we are practically at a standstill; we are not progressing, and one of the reasons is that wherever you find a young fellow with a new idea, everyone says, "Aha, it will never do." But it is a wonderful thing. We are still doing business, and right on top, and we are going to win out in the end. I cannot leave the subject without suggesting to the doctor that he try certain experiments in which he varies his carbon dioxid combination from time to time, and goes back and checks them and see what effect that will have. Of course, I see the difficulty he is contending with. There is one thing I want to speak about while on this subject, and that is this, that for some time I have been working on the question of dust and its effect in causing tuberculosis in closed rooms, in the room of a patient having tuberculosis. I think there is a good deal to it—the number of dust motes to the square inch—and it presents a lot of difficulty, and I think those motes probably cause sufficient irritation in some cases to cause disease.

O. M. Gilbert, Boulder: May I speak one moment? I cannot see this splendid paper go by without taking part in the discussion, because I have such great admiration for the work the men have been doing there. I would like to say as to the immunity, the cellular process and the chemical process, I predict that it will turn out like "Who won the war?" You know that is for generations. It is going to take the rest of our lives to settle "Who won the war?" Anyway, we all won. They could not have won without us, or we could not have won without them. I hope Dr. Gauss will make it clear, whether I understood him right, that the tubercle bacillus liberates carbon dioxid to the extent of 5 percent in the tube. If so, it clears a point that was hazy in my mind and which was a little difficult to explain on that theory, because we know in getting tubercle bacilli we have to open the tube once in a while to let them grow. When you say the tubercle bacilli liberate carbon dioxid to that extent, why, that explains the difficulty. I am not yet ready to give up the theory of the lymphocyte, the part that the lymphocyte plays, although of course we have had to recede partly from the strong position that was taken. I have made lymphocyte counts in every one of my cases now for over ten years, and I am thoroughly convinced that it plays a very important part, and I have in a number of instances been able to predict a favorable or an unfavorable outlook, all other things being equal, when the lymphocytes were responding well or not responding well. We know in diagnosis when an exudate is tuberculous that it is nearly always lymphocytic. There are certain exceptions, but that is the general rule. I observed with great pleasure the work of Dr. James Murphy in the Rockefeller Institute some six years ago in which he demonstrated that when the spleen is taken out of an animal, human or otherwise, the lymphocytes rise and then gradually fall, re-

maining somewhat above the normal. Now, then, he tested these animals out for resistance to tubercular infection during the same process, the same period, and found the two curves were almost exactly parallel. I don't mean to leave the impression that that is the whole thing, but I do believe that it is an important factor. I watched my lymphocytes increase from 32 to 52 percent as I convalesced from tuberculosis.

Dr. Gauss (closing): Dr. Gilbert states that the lymphocyte count has aided him in the prognosis of tuberculosis. There is no question about this. There are a great many diagnostic and prognostic signs in tuberculosis. The question we raise is whether the lymphocyte is the important factor in resistance in tuberculosis. We might raise the same questions with reference to the presence of fever, or the loss of weight, common to this disease. Loss of weight is an important factor in the prognosis of tuberculosis, but we do not believe that it is necessarily related to the mechanism of resistance. It is an important factor in prognosis, which is an entirely different thing. The question has been asked, whether the tubercle bacilli liberate carbon dioxid. They do; they liberate carbon dioxid as an end product of respiratory metabolism, the same as other forms of plants and animals. If tubercle bacilli are growing in an ordinary culture tube—one that is sealed with cotton and paraffine—the carbon dioxid will escape by diffusion, whereas if the culture tubes be rubber sealed or glass sealed, then the carbon dioxid cannot escape, and it accumulates. We know that when the carbon dioxid concentration within the tube becomes 5 percent the tubercle bacilli apparently cease to grow. The first doctor has asked, What is the relationship between carbon dioxid and vaccination? We are not prepared to answer that question at present. We do not state that this theory will explain everything. We do not advocate it as a general explanation for everything. We merely state that it is worthy of consideration.

PERNICIOUS ANEMIA AS STUDIED THROUGH A REMISSION—CASE REPORT.*

**WILLIAM GRIEG, JR., M.D., AND WILFRED S.
DENNIS, M.D., DENVER.**

X, age thirty-six, was admitted to the medical ward of the City and County Hospital on January 3, 1922. His chief complaint upon admission was weakness, dyspnea, palpitation, and numbness of the hands and feet. According to his statement, six months ago he had been knocked down and run over by an automobile and confined to his bed for two weeks as the result. Before this accident he had been feeling very well but afterwards he was not able to regain his usual energy and strength. A few weeks after getting out of bed he became aware of early fatigue upon slight or moderate exertion. This sort of thing increased until it amounted to actual exhaustion. With this progressing disability came edema of the hands and feet, palpitation, and dyspnea. He noticed too, that his skin was taking on a yellowish tinge. In his past history he stated that his health had always been fairly good. He had had the usual diseases of childhood without any known sequelae. He had double pneumonia in 1900. In 1902 he suffered with considerable gastrointestinal disturbance of an indefinite nature. During 1916, while working at a high al-

titude he became very weak and had to quit his employment. The cause for this weakness was not ascertained. Between the years 1914 and 1919 he was troubled with numbness of the limbs; this was not constant but occurred at rather frequent intervals. He also stated that as long as he can recall he has been troubled with attacks of diarrhea. Ordinarily these would last for a few days with two to five bowel movements in the twenty-four hours. At other times these attacks were severe and accompanied with loss of weight and strength. His venereal history was negative.

The father is said to have died of miner's consumption. The mother died at the age of sixty-two, cause unknown. However, it is remembered that for some time prior to her death she had edema and numbness of the hands and feet, and a yellowish skin. During her life time she had had goiter and some heart trouble, probably tachycardia, and attacks of diarrhea, such as were noted in the patient's personal history. An aunt, the mother's sister, had goiter with marked nervous instability, and attacks of diarrhea. One sister died following operation on the thyroid for relief of toxic symptoms; she, too, had attacks of diarrhea. His two children are living and well.

Physical examination revealed a well nourished white male with pale ashy yellow skin, dry and pale lips, and yellowish sclerae. The skin of the body is doughy and of a pasty grapefruit yellow. The subcutaneous tissues are well preserved. The pupils are equal and react to light and accommodation. The mucous membranes of the mouth, nose, and throat are pale. The tongue, gums and teeth are clean. Glands are not palpable. The thyroid is not palpably enlarged. The finger nails are pale. The chest is symmetrical with fair expansion; the lungs are clear. The heart is rapid with hemic murmurs heard at base and apex. The abdomen is soft with slight tenderness in the epigastrium; the liver is felt three fingers' breadth below the costal margin; the spleen and kidneys are not palpable. The external genitalia are negative. The feet are edematous. The tendon reflexes are exaggerated with a positive ankle clonus and a positive Gordon and suggestive Oppenheim on the right. Blood pressure, 98/52. The patient lies in bed with every indication of extreme weakness.

The blood Wassermann was negative. The urine and sputum were negative. The feces were negative for parasites or ova; there was no blood, pus or mucus seen; the reaction and flora balance were negative. The gastric analysis showed a complete absence of free hydrochloric acid and a total acidity of 15; otherwise the examination was negative. There was a slight blood nitrogen retention, urea 28 mg. per 100 cc.; creatinine 2.5 mg. per 100 cc. The blood sugar, 0.108 percent, was normal. The alkali reserve (Van Slyke) was low, showing a carbon dioxide combining power of 41 volume percentage. This acidosis was independent of ketone bodies in the urine.

*From the service of Dr. G. K. Olmsted, City and County Hospital of Denver.

The blood counts, which are arranged to facilitate comparison, were as follows:

	Date	Hemo.	C. I.	R. B. C.	W. B. C.
(a)	1-4-22...	10%	0.5	1,050,000	5,400
(b)	1-7-22...	10%	0.5	1,100,000	5,100
(c)	1-10-22...	10%	0.45	1,280,000	18,000
(d)	1-12-22...	30%	1	1,420,000	9,300
(e)	1-16-22...	30%	0.5	2,890,000	8,300
(f)	1-23-22...	45%	1	2,360,000	12,000
(g)	1-30-22...	56%	1	2,370,000	12,400

Remarks: (a) Erythroblasts not seen. (b) Erythroblasts, one seen after long search. (c) Polys 76.5 percent—few myelocytes, many normoblasts and an occasional megaloblast. (d) Few normoblasts. (e) Erythroblasts not seen. (f) Polys 85 percent—feverythroblasts not seen. (g) Erythroblasts not seen.

The usual irregularities in size and shape and staining qualities were present in all the examinations.

The patient's condition remained practically the same from the time of admission until the 12th, with the exception of the blood picture which will be referred to later. On this date an acute middle ear infection developed with a mild febrile reaction; the fever disappeared upon drainage of the ear. On the 10th of the month it was evident from the blood picture that a remission was occurring. It will be noted by referring to the blood pictures that on this day there was a leucocytosis and a very generous shower of nucleated red blood cells. With the nucleated forms of erythrocytes came a number of myelocytes. From this date on the hemoglobin content steadily increased until on the 30th, the day before the patient's death, it had reached fifty-six percent. With the rise in hemoglobin went a variation in the color index which finally reached one and better. The leucocytosis which appeared on the 10th and which was undoubtedly associated with increased bone-marrow activity, fell back in two days, or possibly sooner, to a lower level and at the same time the nucleated red cells disappeared from the blood stream. The question as to whether the infection stimulated the transition or whether the leucocytosis on the 10th was a part of the infection which became evident upon the 12th, is left open. It is our opinion, however, that the remission and the infection have no relationship. The leucocytosis increased again on the 23rd and was associated with fever. The patient now complained of pain in the joints, making it impossible to move about in bed. The R. B. C., it will be seen, increased steadily in numbers, keeping pace with the hemoglobin, which increased by virtue of the increased number of megalocytes.

The fever instituted on the 21st, persisted; on the 29th he was unable to swallow and on the 30th developed a divergent strabismus with fixed and unequal pupils. He died on the 31st. During the last week of his illness the weight loss was considerable, so that at the time of his death he had more the appearance of cachexia than of pernicious anemia.

It is interesting to note the resemblance of this case, prior to the remission, to an aplastic type of pernicious anemia. The hemoglobin was low, the color index was also low; the disease had apparently progressed with great rapidity and the blood picture with its absence of evidence of bone-marrow activity justified this conclusion.

Without drawing any conclusions, the family history, it seems, is worthy of mention. It will be seen that there was a history of diarrhea on the female side of his house, the mother, aunt and sister having suffered at some time or another from this complaint. Also that these same persons had some disturbance of the thyroid gland and in the sister at least it was of a very definitely toxic nature. Was the diarrhea part of the symptomatology of toxic goiter in the family history or was it an accidental gastrointestinal disturbance? Was the diarrhea in the patient a factor in his anemia or was it an accidental gastro-intestinal disorder? Or is there no relation at all between the historical background, his own tendency to diarrhea, and his anemia?

The postmortem examination showed a lobular pneumonia and a septic arthritis, of recent development, in the left knee. The heart was relaxed and flabby. The liver was enlarged and showed passive congestion. The gastrointestinal tract was everywhere negative. All the other viscera were also negative. A piece of cord from the upper dorsal region was removed. The bone-marrow in the left femur was a deep brick red. A piece was removed for study.

Microscopically, probably through technical error, the cord did not reveal anything. The tissues generally were not well preserved. The liver and spleen showed considerable pigment. The liver was fatty and so were areas of the heart muscle. It was not possible to determine the exact condition of the gastric mucosa. The bone-marrow was a solid mass of cells. There were present many nucleated red blood cells, in places these were in small colonies; myelocytes were seen in all stages of differentiation. There were a few huge multinucleated cells, a few lymphocytes and many erythrocytes.

SUMMARY.

A case of pernicious anemia showing a remission during which the hemoglobin rose from ten percent to fifty-six percent in twenty-one days. With the rise in hemoglobin content were showers of erythroblasts and megalocytes as well as leucocytes and myelocytes.

Early disturbances of the sensory nerves, numbness of the limbs having been complained of in 1914.

The absence of free hydrochloric acid from the gastric secretions and a long history of recurring attacks of mild diarrhea.

The blood chemical findings of a slight nitrogen retention and an acidosis not associated with ketonuria seem to be in keeping with the chemical findings reported by others in this disease.

CONSCIOUSNESS AND SECRETIONS*

LAWRENCE W. COLE, PROFESSOR OF PSYCHOLOGY, UNIVERSITY OF COLORADO.

Before an audience of physicians perhaps it might be of interest to discuss Head's somewhat recent volumes, *Studies in Neurology*, and to consider the evidence he gives that the thalamus is the center of pain and emotional states.

It might be more immediately practical to discuss the dangers of psychotherapy. When college professors believe they see an enormous goiter disappear instantly under the hands and prayers of the faith healer, it is perhaps time to study the psychology of college professors. Even auto-repair men are making use of psychotherapy. They operate by suggestion on the owner of the car, assuring him that it is now all right. Yet when the effect of suggestion wears off the owner again detects all the symptoms of the old defect. If for no other reason, everyone should study psychology for the sake of avoiding the dangers of psychotherapy, for the bodily machine is still very precious to its possessors.

Instead of choosing either of these topics, however, it seems appropriate to pay a tribute to the genius of the great Russian physiologist, Pawlow. He is in very sad plight by the dictates of communism. Yet, since his ability is of the first order, it seems fitting that we should spend the evening in considering the work of Pawlow and his disciples and then mention briefly the effect of hormones in regulating personality. The theories on the latter topic may be quite in error but we may be sure they will command the attention of scholars until the truth emerges.

It will be recalled that Pawlow began his researches by a study of salivary secretions. He severed the duct of the submaxillary or the parotid, of a dog and attached the sectioned end to an opening in the skin at the side of the jaw. Soon there was a good fistula through which the saliva would run into a test tube attached to it by a smaller glass and rubber tube. The amount of saliva became an index of the mental and emotional state of the dog. If the animal was fed only at a given signal for a time, the signal alone would cause the flow of saliva. There was thus a means of studying memory and its influence on secretions. Suppose the signal were a sound. It soon brought about the secretions. Then Pawlow raised the pitch of the sound gradually until he was able to prove that the dog can respond to 70,000 or 80,000 vibrations, a tone almost twice as high as the upper threshold of human beings.

For the layman, at least, one of the most interesting discoveries is the secretion of different kinds of saliva for different stimuli. If the animal is given table salt or sulphate of quinine the saliva flows immediately, is abundant, fluid, and poor in ferment. For sugar or sand the saliva is slow in coming, small in amount, viscous and rich in amylase. For meat the se-

cretion is small in amount but rich in chemical composition. Hence, to quote the Frenchman Mayer, "the saliva is different in its mode of appearance, i. e., flows more or less quickly, different in its quality, different in its composition." This is interesting to the psychologist since the odor of the food, the signal which has been associated with a given food, etc., will produce the appropriate saliva. Unless reflexes are discriminating the dog's memory of odors or his memory of the sight of a tube of quinine, in a word, his consciousness must be the cause of the different secretions. In fact a step further was taken. If a dog which always prefers bread to meat, or cooked meat to raw, is confronted with two of these foods, the saliva will be that for the kind of food the dog prefers. Here it seems as if his desire or preference is a member of the chain of organic events. Our desires may be due to hormones and intravisceral tensions, as Berman insists, but it is quite as true from this experiment that our glands obey our desires.

However Pawlow performed a still more decisive experiment to show the effect of consciousness on secretions. He sectioned the esophagus of a dog above the heart and made it open through the skin as already described for the salivary ducts. Then he made a gastric fistula; after recovery food which was placed in the dog's mouth was chewed, swallowed and discharged through the esophageal fistula. Pawlow calls this a "fictitious repast". A slight, reflex, gastric secretion could be obtained by introducing food directly into the stomach. When, however, the animal was allowed to smell a morsel of food or gave him food to be tasted, chewed, swallowed and digested there was an immediate and abundant gastric secretion. Yet say the French physiologists, whose account I follow, there is neither a sensorial reflex path nor a sympathetic one uniting directly the glands of the mouth or esophagus to those of the stomach in a dog whose gullet has thus been sectioned. In this case the state of consciousness is not linked with the reflex but must be the cause of the gastric secretion. The excitation is central and linked with an emotion. So the French writers conclude that "it is the pleasure that the dog has in tasting, chewing, and swallowing the food which causes the secretion."

It is regarded as easy to give further evidence of this. If a dog prefers cooked meat to raw, if he throws himself eagerly on the one and leaves the other untouched, it is the cooked meat which determines the secretion. Force him to eat raw meat. There is little or no secretion. A dog with the opposite tastes behaves in just the opposite fashion. It seems to me that psychology and physiology are wonderfully interlaced in this experiment.

This much an abstract can state in testimony of the genius of Pawlow. We could, indeed, wish that he had a more favorable social and political environment in which to exercise his great talents. His work seems to have stimulated the more recent research in that wonderful field, the functions of the ductless glands. These are

*Read before Boulder County Medical Society, March 7, 1922.

supposed to influence not only consciousness but personality. The recent work of Dr. Louis Berman may be rather speculative but it will be refreshing to state the three types of personalities which he says are determined by internal secretions, and to add perhaps one or two comments.

A. One Thyroid-centered type has: Bright eyes; good clean teeth; symmetrical features; moist flushed skin; temperamental attitude toward life; tendency to heart, intestinal and nervous diseases.

B. One Pituitary-centered type has: Abnormally large or small size; musical, acute sense of rhythm; asymmetrical features; tendency to cyclic or periodic diseases.

C. One Adrenal-centered type has: Hairy; dark; masculinity marked; tendency to diphtheria and hernia.

There are, of course, many variants of these types. The fact that personality is largely hereditary would be explicable if personality were dependent upon hormones in the blood. However, it is certain that when we so glibly speak of personality and temperament we can give no causal or analytical explanation of what we mean. It may be that the increasing knowledge of internal secretions may give us our first analytical insight into temperament, emotions, and personality.

News Notes

Dr. R. W. Corwin has returned to Pueblo after completing a trip around the world which was undertaken in September, 1921. Dr. Corwin's trip embraced Italy, Egypt, India, China, Japan, Korea, Australia and Honolulu.

Dr. R. G. Hersom, formerly of La Junta has moved to Denver, where he will engage in general practice, with offices at First and Broadway.

It is reported that Dr. A. B. Gjellum of Del Norte is preparing to locate in Denver.

The following physicians have volunteered their services to the Government for making physical examination and administering prophylaxis to applicants for the citizens' military training camp: C. E. Bush, J. R. Bramley, G. M. Blickensderfer, W. H. Bergtold, C. C. Bell, F. H. Carpenter, George B. Crews, H. H. Champlin, Henry S. Cooper, R. L. Drinkwater, Clinton Enos, C. E. Edson, H. S. Finney, Harry Gauss, E. V. Graham, J. N. Hall, R. Hudston, G. Heusinkveld, W. B. Lewis, T. F. Long, Vittorio Nacamuli, William Roberts, R. G. Smith, G. C. Stemen, A. W. Stahl, H. S. Shafer, A. S. Taussig, F. A. Tower, C. B. VanZant, D. W. Van Gilder, W. W. Williams, N. A. Wood, G. C. Wallace, P. W. Whitely, all of Denver; E. K. Shelton, Antonito; A. E. Smith and W. H. Twining of Aspen; G. H. Cattermole, Boulder; F. L. Dennis and C. F. Stough of Colorado Springs; L. C. Bolton, Cedaredge; A. F. Hutchinson, Durango; V. A. Hutton, Florence; J. W. Hudson, Fountain; E. W. Kemble, Golden; A. G. Taylor, Grand Junction; John Atcheson, Idaho Springs; A. L. Stubbs, La Junta; John G. McFadden, Loveland; Charles E. Lockwood, Olathe; T. A. Davis, Portland; F. M. Weidlein, Palisades; W. I. Mitchell, Paoonia; J. C. Epler, Pueblo; Ortus F. Adams, Trinidad; G. C. Lamb, Ravenwood.

Dr. J. A. Buchanan, formerly of Rochester, Minn., has located in Pueblo, where he has become identified with the Pueblo Medical Clinic as internist.

Dr. J. S. Rogers, formerly of Kiowa, has located in Sterling, where he will engage in general practice, with offices at 120 Sterling National Bank Building.

The Secretary wishes to acknowledge receipt of the programs of the annual meetings of the Arizona State Medical Association, Prescott and Jerome, June 14-16, and the West Virginia State Medical Association, Huntington, May 17-19.

The following is quoted from a letter written from New York by Dr. W. E. Blanchard to a Denver colleague: "Have been attending postgraduate school the past month and shall remain another two weeks. The work is great. All instruction and clinical work is well systematized and there is so much of it that it is like attending a three-ring circus. I am getting all the major surgery I can do, taking special instruction in bone and joint work. Dr. M. A. Spangleberger is with me and is doing G. U."

Dr. F. S. Spearman, formerly of Rifle, who has been incapacitated for some months by a severe burn of the hand, has resumed practice at a new location, having taken over the medical work at Idaho Springs for the Hot Springs Hotel. He succeeds Dr. F. H. Weber, who is to locate permanently in the East.

Dr. W. J. LeRossignol of Rifle is leaving soon for Chicago and Montreal to take postgraduate work and to visit friends.

Dr. Elsie Reed Mitchell has been in Denver on her way back to California, where she is to conduct the physical examination of the women students at Leland Stanford Jr. University.

Dr. Ida Valeria Beers of Denver has returned after spending six weeks in postgraduate work in New York and Philadelphia.

In a letter to a friend Dr. C. M. Spicer, after describing his postgraduate work in orthopedics at New York, Baltimore, Philadelphia and Boston, has the following to say: "The practice of medicine must certainly be 'fierce' here in Boston, as the Massachusetts General is charging people 50 cents for each case, and that entitles the patients to consultations and also causes a great number of people to go there, as they figure that they are not charity cases, but that the doctors are paid by the hospital. They charge them for x-rays and also for everything else that they do for them. Nearly all the insurance companies send their cases there, as they only have to pay about one-fourth the amount that they would to a doctor on the outside. A person can not imagine the mob that is lined up there every morning." Speaking of congenital hip dislocation, Dr. Spicer says further: "They are now trying at the Massachusetts General a new method worked out by Dr. De Neusay in France that seems away ahead of any I have so far seen. I have been fortunate in seeing several put back, and the work was done without much traumatism."

Northeast Colorado News.

Dr. W. E. Mooney has recently located in Haxtun in association with Dr. J. W. Kinzie.

Dr. W. H. Keesee of Haxtun has been in Denver for two months.

Dr. J. H. Daniel has just installed a large up-to-date x-ray equipment in his office here.

Dr. J. C. Chipman of Sterling attended the American Medical Association session.

The physicians of Holyoke have invited our society to meet with them soon, and as we have no meetings in July and August, we will likely meet there in September.

Dr. J. H. Bush has recovered from an acute attack of laryngitis which confined him to bed several days.

Dr. and Mrs. Louis Packard have a new daughter. Dr. F. E. Palmer is now in Europe for study.

CORRESPONDENCE.

Colorado Hospital Association

"Denver, May 20, 1922.

"My copy of the May issue of Colorado Medicine came yesterday. The Colorado Hospital Association very much appreciates the notice you gave of its purpose, but I like especially your first editorial on "The Hospital and the Physician", and while I appreciate the fact you are writing from the physician's standpoint, and so perhaps felt you

could emphasize rather strongly their side, yet it does not seem to me the physicians are so much at fault in the present lack of knowledge of hospital construction and administration as those who have been actually engaged in the non-professional side, if you please to call it such. Even this has its explanation, in the fact that our hospitals are usually under-manned, and those who are in positions of authority are worked to the limit, giving little consideration to their relation to their co-worker, the physician.

"I wish a larger number of physicians were taking a more active interest in the administrative and construction side of the hospital work, for to my notion the ideal hospital executive is the physician who has had an all-around training; but there has been such a scarcity of material, there have been a few of us who have, as laymen, been glad of the opportunity to serve with the medical profession in the philanthropic service which must be rendered, if it is an effective one, either inside or outside of the hospital when dealing with suffering humanity.

"I have no desire for publicity in this matter—I simply wanted you to know personally how I feel about the matter which you bring out so well in your editorial, and I feel sure the Colorado Hospital Association will be able to secure a large degree of co-operation between all sides of the hospital life.

"Dr. Corwin has not yet returned, but as soon as he does we expect to decide officially to have the convention some time next fall.

"PLINY O. CLARK, Superintendent."

Pueblo Meeting at Antlers Hotel.

May 15, 1922.

Dr. F. B. Stephenson, Metropolitan Building, Denver, Colo.:

Dear Doctor Stephenson—Please pardon the delay in answer to your letter of April 28. I have been to Washington attending the spring meetings and have just returned and hasten to answer your inquiry.

The headquarters and the meeting will be held at the Antlers Hotel. Anyone who wants to stay at the Broadmoor may do so, but I feel that the Antlers is the logical place because it is so accessible, and men getting in on early trains can be at the meeting a few minutes after they get off the train, while at the Broadmoor it would take much longer. The Antlers will give rates: Single room without bath, \$2.50; single room with bath, \$3.50; double room without bath, \$4.50; double room with bath, \$6.

Sincerely yours,

W. V. MULLIN.

DEATHS.

Dr. J. R. Robinson of Colorado Springs died May 10, at the age of 66, while sojourning at St. Joseph, Mich. Dr. Robinson had been a resident of Colorado Springs since 1888 and was mayor of that city from 1899 to 1903. He was born in Mountain Dale, N. Y., in 1855, graduated from the Jefferson Medical College, Philadelphia, in 1882 and was licensed in Colorado in 1888.

WANTED.

For Sale—Lucrative, established practice, small town, western slope. Drugs, office fixtures and furniture of five-room bungalow, inventories at about \$1,400, for quick sale at \$1,000. Practice and thorough introduction included. Excellent opportunity for recent graduate. More than living from start. Inquire of the editor.

A doctor in one of the larger cities in northeastern Colorado would like to make a change of location because of family reasons, transferring his office fixtures; lease or sell residence and can turn a number of appointments. Would consider especially Fort Collins, Longmont, Grand Junction or others, and would make exchange. Inquire of the editor.

Assistantship wanted with busy Denver physician; surgery or nose and throat specialty preferred. Can furnish best credentials and references. Inquire of the editor.

Medical Societies

NORTHEAST COLORADO.

The Northeast Colorado Medical Society held its monthly meeting at Haxtun Thursday afternoon, May 11, 1922. In spite of the bad weather conditions the following doctors were present: F. W. Means, G. P. Anderson, H. C. Hill, P. S. Struble, Z. T. Crawly of Holyoke; W. E. Mooney, R. D. Jordan, F. A. Alcora, J. W. Kinzie of Haxtun; J. H. Daniels, J. H. Bush, E. P. Hummel, M. R. Fox, J. C. Chipman of Sterling; J. W. Fonda, Yuma; W. H. Keese, Denver.

After the business session, at which Dr. Mooney of Haxtun was elected to membership in the society, the doctors adjourned to the home of Dr. Mooney, where they sat down to a five-course dinner as the guests of the Haxtun physicians. The elaborate menu of this enjoyable repast was served by Mrs. Kinzie, Mrs. Mooney and Mrs. Alcorn.

After the gastronomics had been disposed of, the physicians retired to the office of Dr. Kinzie for the scientific program.

The following program brought out lively and constructive discussion in keeping with the high standards of such functions held at Haxtun in the past.

"Surgical Shock", Dr. Mooney; "Dentistry That Is of Interest to the Physician", Dr. Struble; "Contagious Diseases", Dr. Alcorn; "Business Methods of the Yuma Doctors", Dr. Fonda; "Co-operation, Ethics, Etc.", Dr. Means.

A standing vote of thanks was extended the Haxtun bunch for its entertainment, and adjournment sent the visitors home feeling that the trip through the storm had been more than worth while.

J. H. BUSH, Reporter.

Notes From the Library

BOOK REVIEWS.

The Mechanics of the Digestive Tract. By Walter C. Alvarez, M.D., Assistant Professor of Research Medicine, University of California Medical School. Pp. 192 with twenty-two illustrations. New York: Paul B. Hoeber, 1922. Cloth, price, \$3.50.

This little book has developed as an elaboration and amplification of a lecture presented before the American Roentgen Ray Society. The author aims to have it serve as a help and convenience to those practitioners and roentgenologists who are already finding the gradient theory useful in their work, and who wish to know more about the subject. He tries to make it sufficiently readable and practical for the medical student or the physician who is looking for help on a clinical or surgical problem. The chapter on technic will be helpful to research workers, because the information embodied in it has hitherto been scattered through many articles in different languages. Few statements have been made in this book which are not based either upon the author's own observations or upon a careful reading of several original articles.

While the views expressed and the conclusions reached may be materially changed in the future, such a book remains as a basis for all subsequent work on the subject treated. It is greatly to be desired that there may be more monographs of this type.

J. L. M.

Neoplastic Diseases. A Treatise on Tumors. By James Ewing, M.D., Sc.D., Professor of Pathology at Cornell University Medical College, New York City, Second Edition, Revised and Enlarged. Octavo of 1054 pages with 514 illustrations. Philadelphia and London: W. B. Saunders Company; 1922. Cloth, \$12, net.

Except for some revisions and additions to the chapters on tumors of bone, this, the second edi-

tion, is practically the same book as the first edition. The detailed discussion of the gross and histopathology is complete and comprehensive. The statistical data are interesting and as valuable as the statements of the statistician should be allowed to be. The bibliography is most exhaustive and satisfying. For photographs, the illustrations are as good as could possibly be expected. There is only one suggestion which the reviewer would submit, and that is the elaboration of the illustrations in colors such as we admire so much in the works of our professional brethren across the seas. This undoubtedly would add materially to the value of this already extremely valuable volume. W. S. D.

The Practical Medicine Series, Vol. IV, Series 1921. Pediatrics, Edited by Isaac A. Abt, M.D., Professor of Pediatrics, Northwestern University Medical School. Orthopedic Surgery, Edited by Edwin W. Ryerson, M.D., Associate Professor of Surgery (Orthopedic), Rush Medical College, etc., Chicago. The Year Book Publishers, 304 South Dearborn Street. Price of this volume, \$1.75.

This volume gives both the general practitioner and the specialist in either of these lines of work a quite complete review of the medical literature of pediatrics and orthopedic surgery for the latter part of 1920 and of 1921. The first half of the book, devoted to pediatrics, beginning with a section on progress, deals with diseases of the new born, infant feeding and nutritional disorders, gastro-intestinal diseases, heart, blood vessel and blood disorders, a comprehensive section on acute infectious diseases, and of the nervous system, shorter sections on the ductless glands and disturbances of internal secretion, respiratory diseases, diseases of the urinary organs, skin, nose and throat diseases, rickets and scurvy. In the portion devoted to orthopedic surgery conditions affecting the spine and the upper and lower extremities are discussed, and while conservative methods of treatment receive due consideration, there is a noticeable increased amount of space given to operative methods, especially in lesions of the lower extremity. H. W. W.

Tuberculosis in Infancy and Childhood, by J. Claxton Gittings, M.D., Professor of Pediatrics in the Graduate School of Medicine, University of Pennsylvania, and Frank Crozer Knowles, M.D., Professor of Dermatology in the Jefferson Medical College, and Astley P. C. Ashhurst, M.D., Associate Professor in Surgery, School of Medicine, University of Pennsylvania. Cloth, \$5; 273 pages with 23 illustrations. J. B. Lippincott Company, Philadelphia and London; 1922.

The frequent and the protean manifestations of the Great White Plague at the threshold of life become of double significance in the light of indubitable evidence that tuberculosis in early years is the precursor of consumption in the adult. Hay's succinct interpretation of the view advanced by Behring in 1903 that "in the majority of instances tuberculosis is contracted in infancy or childhood, remains latent and unrevealed during school life and only becomes evident in adolescence or early manhood," has so affected our conception of this stupendous problem that any authoritative contribution must be received by the profession with genuine gratification. If, as is conceded by most observers, a not inconsiderable proportion of the morbidity and the mortality from this disease in mature life is the result of an infection incurred in childhood, the prophylaxis of tuberculosis will appeal with particular fitness to the pediatrician, who in his daily rounds may find every factor concerned in the propagation of this infection "in active service". Considering the importance of the question, in the light of this new doctrine, there has been a dearth of explicit information available for the busy practitioner. The authors of this work have compiled in small compass a comprehensive study of tuberculous infection in the young. In their collaboration they have covered completely the field of medical, surgical and dermatological aspects of the disease and have devoted chapters to diagnosis and treatment which summarize and amplify the

ideas of our best clinicians. Altogether a meritorious and timely work. J. W. A.

The Medical Clinics of North America (Issued Serially, one number every other month.) Volume V, Number IV, January, 1922. By New York Internists. Octavo of 214 pages with 38 illustrations. Per clinic year (July, 1921, to May, 1922): Paper, \$12, net; cloth, \$16, net. Philadelphia and London: W. B. Saunders Company.

The New York number of the Medical Clinics comprises the usual series of contributions covering a wide range of subject matter, and on the whole is interesting reading.

The opening clinic is presented by Dr. Warfield T. Longcope, who considers epidemic jaundice with special reference to the mild form occurring in the United States, with two illustrative cases which seem to him to belong to this group. This is followed by a most interesting conference of a clinical pathological nature on staphylococcus aureus endocarditis by Drs. A. R. Lamb and William C. Von Glahn. The views of an authority like Dr. Harlow Brooks on the treatment of pneumonia make his contribution a valuable one. It is based on a broad clinical experience describing measures which one will be called upon most frequently to use. His knowledge is not derived from the laboratory, but from the study of the disease as it is seen clinically in the ward and by the bedside of the private patient.

The rôle of the capillaries in circulatory disorders is considered by Dr. Ernest P. Boas, who presents illustrations of unusual interest. The study of capillary disease has just begun and offers to clinicians as well as to physicians a fruitful field for future research. Dr. A. S. Blumgarten discusses the endocrine factors in some common functional diseases, considering especially the diagnosis and treatment of pituitary headaches and adrenal cortex therapy in hyperthyroidism and functional thyroid disturbances.

A praiseworthy clinic by Dr. Albert A. Epstein on the clinical course and therapeutic management of chronic nephrosis follows. The use of the high-protein diet with or without thyroid appears to him rational in this condition. Dr. John L. Kantor discusses five common clinical types of appendicitis. An interesting case of hypernephroma with spinal metastases is presented by Dr. Jesse G. M. Bullowa. Rabbit hair asthma in children is dealt with by Dr. Bret Ratner. An authoritative discussion on the treatment of high blood pressure by Dr. Herman O. Mosenthal deserves commendation.

This number closes with an interesting clinic by Dr. Burrill B. Crohn on tabetic crises and associated gastric ulcer. J. L. M.

The Surgical Clinics of North America (Issued Serially, one number every other month.) Volume II, Number 1 (the Philadelphia Number). 331 pages with 145 illustrations. Per clinic year February, 1922, to December, 1922): Paper, \$12, net; cloth, \$16, net. Philadelphia and London: W. B. Saunders Company.

In reading the February number of the Surgical Clinics of North America we find such a diversity of cases that it is perplexing to select a few for special mention. Sixteen Philadelphia surgeons are the contributors, and together they present fifty-seven cases.

As always, Dever's contributions are not only interesting and pleasant reading, but contain many points of value. He tells us nothing new this time, but as a review his portion is concise and pleasant reading.

A contribution by C. H. Frazier on brain surgery is always worth while. In this clinic on tumor and abscess, he discusses ventriculography and localization, while following one case through in detail.

Ashurst has nine cases, all problems in colonic and rectal surgery. He describes several kinds of resection of the large bowel.

Of particular interest also is the discussion of burns and the acetic acid treatment by Dorrance and Bransfield. G. B. P., Jr.

Colorado Medicine

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THE TURLEY CASE AND THE LESSON THEREFROM.

The science of preventive medicine made it possible that health, the most precious of human possessions, is purchasable. It is just as purchasable a commodity as many other necessities of life, and in many instances it is the cheapest of the commodities on the market. This apparently paradoxical statement will appear in all its truthfulness the minute we look at the table of the decrease in mortality from typhoid, malaria, smallpox, yellow fever, and many other diseases of which we have an exact knowledge of the causative agent. We can buy health, so to speak, and save ourselves the suffering from many an affliction, by preventing disease. It may be just as truthfully said that crime, or at least a large portion of the monstrous and hideous Bosco-Turley type, is preventable.

In a very careful study of four hundred and fifty criminals (by Louis S. Besch, A.B., M.D., Ph.D.), in New York, only two hundred and five were found to be normal. The rest suffered from unmistakable psychosis and feeble-mindedness of various degrees. This state of affairs is characteristic not only of New York—it reflects the true situation of things wherever crime is committed. It is a matter of common knowledge to many students of psycho-pathology, as well as to the broader minded criminal judges, prosecutors, prison wardens, and social workers.

There are no available data as to the amount of money the people spend on the various agencies to apprehend and finally isolate these criminals, whether it be capital punishment, imprisonment, or commitment to an asylum; it is fairly certain, however, that it is infinitely more than it would be, had society attempted to prevent crime.

If the Turley case is anywhere approaching the average, it is indeed worthy of analysis. When the people get through paying for the investigation of the case, for the time spent by the various officers of the police department, the district attorney and his co-workers, the judge and his subordinates, the medical experts, the lunacy commission, the guardian ad litem, the extra guard required on several occasions to prevent lynching of the murderer, and the many other expenses connected with the case, it will well mount up into thousands

of dollars. Some officers place the expense at ten thousand dollars, to say nothing of the loss of an innocent human life; and all this to discover what a senior student could have detected at least one year ago, namely a sufferer afflicted with dementia paralytica.

The atrocious nature of the crime and the sensational coloring and publicity given it by the press have worked up such a sentiment among a considerable element of the public that any analysis of the case other than that of emotion is very likely to bring unjust criticism. The fact, however, remains that this case is so typical of many a crime, and it is of such decided social importance, and there is such a lesson to be learned from it, that it should not be passed up without proper elucidation.

The question is not of so much importance as to whether Orville Turley should be hanged, imprisoned for life, or committed to an asylum, as it is what are we as a society going to do to prevent the thousands and thousands of Turley tragedies that are taking place daily?

Granted that Turley is to blame for contracting a so-called social disease; but what about society permitting the existence of social diseases, and what about society that deliberately closes its eyes to diseases which have the distinction of being called social, and branding their victims as moral delinquents and outcasts, whereas those suffering from disease caused by the first cousins of "social disease germs" are looked upon as martyrs? Are we not as a society to be blamed just a little bit? Our responsibility in permitting the existence of venereal diseases does not cease there, but we are further responsible for Turley's victim and the premature destruction of the own life of the numberless various Turleys. He did not want to kill his victim, nor did he deliberately plan to swindle anybody. Three weeks after he contracted the disease that led to this tragedy he tried his best to rid himself of the infection. He knew that he had a "social disease", but at the same time society looked upon him as an outcast, and in his despair what was he to do? He read in a leading daily paper an article by a "prominent specialist" who helped thousands of men by curing them of all kinds of blood diseases. The article in the paper (a copy of which can be found in any daily, anywhere throughout the United States), read so sincerely, so encouragingly and humanely that the little letters, "adv.", at the bottom were

entirely overlooked. To use Turley's own words, "I went to the best specialist in Kansas. He had his office on one of the main business streets. He had a big black sign with golden letters on it and gold medals for curing men. I paid him two hundred dollars—he gave me forty injections in the stomach and cured me." We permit all kinds of charlatans to deliberately lie publicly; we permit them to use the names doctor, professor, or specialist, publicly, and to lure their victims amidst broad daylight. When these victims go mad we think that the very least we should do is to hang them.

The Turley crime gained such wide publicity because of its unusual nature. Other cases of general paresis which develop for identical reasons are more pleasant from the aesthetic viewpoint, so to speak, but they are just as tragic in their consequences, if not more so.

There is another lesson to be learned from the Turley case, and that is the frequent association of mental disease with crime and the importance of its early detection. The obliterative endarteritis of Turley's entire cerebrospinal system manifested itself long before the actual collapse, in numerous ways of misconduct. The crime of selling mortgaged property to his future victim was one of the manifestations of mental disease, but it was misunderstood and misinterpreted by the officers of the law as well as by all other of his lay friends. Had the officers who prosecuted him for the first minor crime had a deeper insight into the difference between the habitual criminal and the mentally aberrated one, Turley would have been singled out then and there, and had they sought medical advice, any general practitioner would have detected the earmarks of general paresis. At least one human life would have been saved; possibly Turley himself would have been rendered temporarily a useful member; and the people would have been saved thousands of dollars so unnecessarily spent.

The expenditure on the Turley trial would pretty nearly secure the service of a competent psychopathologist to examine every criminal. Many a life might thus be saved, many a mental case detected in its incipency, and many a future crime prevented. May it not be hoped that the Turley tragedy will serve as an impetus both to the legal and medical professions along the lines of prevention of crime traceable to mental disease?

L. V. T.

"ANTIVIVISECTION" NOTES.

At the time this is written the bill to cripple the new \$1,500,000 medical school, to prevent the preparation in this state of curative serums for man and livestock, to stop the diagnosis of syphilis and certain forms of tuberculosis, and (if enforced to its logical interpretation), to prevent castration, branding and dehorning of livestock—the so-called antivivisection bill—has been formally initiated, the petition bearing the required number of names having been filed. It will be mandatory upon the election

officials to put the bill upon the ballot at the fall election.

Much has been said in Colorado Medicine on the subject, and there is little left in the way of opposing propaganda that would be new; but repetition in new wording will serve to keep in the foreground those arguments on which we take our stand. The following resolutions are well worth rehearsing:

Resolution of the Colorado Veterinary Medical Association.

Whereas an antivivisection bill has been presented to the people of Colorado, and

Whereas the bill would effectually stop all animal experimentation, and

Whereas we believe that it would prevent further research into either animal or human disease, and

Whereas we believe this bill, if it should become a law, would be very inimical to the livestock industry; therefore be it

Resolved that we use our best efforts to defeat the bill and urge each one of our members to do likewise.

Adopted June 2, 1922, at the annual meeting of the Colorado Veterinary Medical Association, Fort Collins, Colorado.

DR. I. E. NEWSOM, Secretary.

Resolution of the St. Louis Medical Society.

Whereas the unrestricted use of animals is absolutely essential for the teaching of medicine and the conquest of disease not yet completely brought under control, and

Whereas it is only through the use of animals that medicine can be taught, that it is possible to make diagnosis and to prepare medication for a large number of diseases, such as diphtheria, lockjaw, hydrophobia, smallpox, tuberculosis, syphilis, and a host of others, and

Whereas it has only been through the use of animals that we have been able to free ourselves of the scourge of childbed fever, thus to give the baby in arms to its mother, to free ourselves from typhoid fever, yellow fever and plague and to develop methods for the reclaiming of our injured and maimed soldiers and other mutilated individuals, and

Whereas through the use of dogs especially, students can be adequately trained so that they do not meet their first patient without previous experience, and the skilled surgeon is enabled to devise immediately new methods of treating a rare kind of injury coming to his attention, and

Whereas this use of animals is solely to obtain knowledge for the alleviation of human suffering, which knowledge surgeons and medical investigators have frequently furnished at the expense of their own lives, and

Whereas it has come to our attention that for some time past the advancement of medical and scientific knowledge has been seriously hampered in St. Louis through the inability of our laboratories to obtain sufficient animal material, and

Whereas we know that the animals in our

laboratories are well cared for and humanely treated, therefore, be it

Resolved by the St. Louis Medical Society that we do hereby endorse heartily the proposed ordinance now before the board of aldermen and respectfully urge its passage in the interests of humanity and of public health and safety in order that men can be properly trained for the practice of medicine; that we may advance our knowledge so as to bring under control diseases before which we are still practically helpless; and finally, in order to protect the fair name of our city, which is already regarded as one of the leading centers of medical learning in this country, a position it cannot hope to hold unless given unrestricted opportunity to advance.

Resolution of the Colorado State Board of Health.

Whereas a bill has been initiated in Colorado to prohibit all forms of animal experimentation, with or without anesthetics, and

Whereas animal experimentation has conferred inestimable benefits on mankind, and

Whereas the advocates of the antivivisection bill are issuing circulars containing wanton falsehoods and evil imputations; therefore be it

Resolved that the Colorado State Board of Health expresses its condemnation of the antivivisection bill and the misrepresentations employed by its proponents.

Resolution of the Colorado Dental Association.

Whereas it is impossible to estimate the number of people and animals alive today who owe their existence to the application of methods, preventive or remedial, made possible through scientific experimentation on animals, and that in so doing man has violated no moral law, and

Whereas certain misguided, misinformed and over emotional people are busying themselves to pass legislation which would prevent animal experimentation of any nature or sort whatsoever, and

Whereas the State Dental Association is cognizant of the great backward step in preventing disease, improving physical conditions and saving life of man and animals should such legislation be passed, and

Whereas the State Dental Association, in annual convention assembled, desires to be put on record as solidly against any legislation which would tend to prevent the use of animals in furthering the advance of medical science; therefore be it

Resolved that the State Dental Association appoint a committee to confer with such other committees as are or may be appointed by the State, County and City Medical Societies for the purpose of defeating the so-called antivivisection legislation.

Resolution of the Colorado Association of Life Underwriters.

It is Moved: That the Life Underwriters' Association record its disapproval of the antivivisection bill being initiated in Colorado, and pledge itself to oppose in every way the pas-

sage of such bill, as being against the public welfare.

* * *

The St. Louis resolution was adopted in the fight in that city which arose when the dog pound fell into the control of the Humane Society. The supply of dogs to medical schools was immediately stopped, and although through the good offices of the mayor the Humane Society promised to furnish sufficient dogs to the schools to enable them to finish their terms, it did not live up to its promise.

A unique result was that the antivivisectionists-Humane Society contingent was put on the defensive when an ordinance was introduced in the city council (through the dean of the Washington University School of Medicine) providing that dogs must be furnished to properly qualified medical schools—the arrangement previously having been a direct deal between the pound and the schools without legal provision. In addition to widespread publicity such as addresses and the passing of resolutions by various organizations—ministerial alliances, civic bodies, women's clubs, etc.—the aldermen were invited to the schools where they were allowed to see animals under experiment and to follow them through their after-care. They also were shown operations on humans, so that the value of the experimental work was thus forcibly presented. The first aldermen to make the visit were so impressed that they asked to be allowed to come again and bring others, which they later did, twenty aldermen out of twenty-eight making the visit on March 9. The bill passed, twenty-two to four, two aldermen not voting.

This telling victory is graphically described in detail in the May 6 issue of the journal of the A. M. A., page 1412.

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The article in this issue of Colorado Medicine by Dr. Stiles of the Bureau of Animal Industry, gives an excellent and orderly recapitulation of the scientific and economic achievements of animal research. It will prove a convenient reference for the doctor who is interested and wishes to help in this important cause.

IMPARTIAL CLINICAL STUDIES OF CULT METHODS OF TREATMENT.

In the current issue of the Atlantic Monthly under the title of "Osteopathy, Chiropractic, and the Profession of Medicine", Dr. Channing Frothingham of the faculty of the Harvard Medical School writes interestingly and much to the point on a timely subject.

After considering in a very fair and open manner the theory and practice of Osteopathy and Chiropractic he states, "In this short summary of the situation as it exists today in regard to Osteopathy and Chiropractic, an attempt has been made to show that, in both these professions, there is something of value in the treatment of certain diseased conditions, even if the exact method by which this benefit is obtained is not understood. It has also been attempted

to show that these professions can in no way replace the established facts of medical science; and that those using these methods of treatment should have the same general knowledge of medicine that is required of the regular physicians in order to safeguard the individual and the public health."

While this statement when isolated appears as an admission to which the majority of the medical profession perhaps would not subscribe, when the article is read in full it is made plain that the work of neither of these two cults rests upon any proved scientific basis; that they have not done any experimental work to prove their theories, and that as practiced today by men uneducated and untrained in pathology, in physiology, and in the scientifically proven facts about many diseases, they are a menace to public health. The statement quoted merely admits that in a certain class of cases treated good has seemed to result. Therefore the author considers that the methods used should be scientifically investigated. Without pretending to say whether there is anything or not in the various systems promulgated and advocated before the public, it is probable true that the medical profession has perhaps been rather short sighted in its method of treating the cult question. When any sect in the healing art becomes strong enough to gain general public recognition over large territories, it is worthy of critical study by capable scientists in order that the truth may be known and therapeutic measures of value become available to the general medical profession which is best prepared to assign them to their proper spheres in the treatment of the sick. By its readiness to act through a properly constituted body, scientific medicine can and should know the clinical values or nullities of widely heralded systems of treatment. It should likewise be in position to speak advisedly against worthless or harmful measures.

With the average American citizen, the plea of the under dog outweighs any argument that may be advanced as an ipse dixit in the name of science. The medical profession should therefore play fair to the extent of carefully investigating systems which a priori seem to it devoid of merit. It can afford to be magnanimous. Under a democratic form of government it cannot afford to refuse to ascertain the value of innovations and stands condemned before the laity if it persists in such refusal. It should without prejudice use therapeutic measures of proven value irrespective of where found and by whom promulgated. In this way may it gain full confidence of the public. It may at the same time eliminate any reasonable excuse for the recognition of men devoid of scientific training who practice systems of limited or questionable use.

In order to meet the issue there is at present a move on foot to create a commission of capable scientists of judicial temperament to investigate clinical results of treatment by schools of healing of wide popular recognition. The effort is to make this commission, as far as humanly possible, efficient and free from bias. Its selection

and method of procedure should be determined by representatives of the national medical bodies working in conjunction with representatives of the American Bar Association, the National Educational Association, the Association of American Universities, the Rockefeller Foundation, the Carnegie Foundation for the Advancement of Teaching, and such other standardizing agencies as may be deemed best to invite or can be interested to the end that its findings may be given the widest possible credence by all thinking people.

The Federation of State Medical Boards of the United States stands sponsor for the general movement and the various organizations mentioned are being invited to send representatives to a conference to consider ways, means of organizing and direction of such commission. The American Medical Association and the American Institute of Homeopathy have approved the undertaking by official action and it is hoped that the others will comply in like manner.

In the interest of humanity we believe the object in view worthy the active support of the medical profession and of the public.

D. A. S.

STATE BOARD OF HEALTH NOTES.

"His Acts Being Seven Ages."

The fourth age:

"Then a soldier,

Full of strange oaths and bearded like the pard,
Jealous in honor, sudden and quick in quarrel,
Seeking the bubble reputation
Even in the cannon's mouth."

The military authorities were confronted at the beginning of the World war by the fact that the civilian population out of which they were to make an army contained about thirty percent of culls. These discards were caused by defective teeth, poor eyes, crooked spines, flat feet, under size, etc., and also a considerable amount of venereal disease. A determined fight was at once begun against this last mentioned, and still continues, being taken up by the civil authorities. The soldier was impressed with the thought (they at least tried to impress him) that there is danger in the smile of the prostitute, the incarnadined cheek of the temptress, and the come-hither eye of the fair maid who beamed upon his manly form just decked out in his uniform.

The soldier was vaccinated against smallpox without ceremony and was inoculated against typhoid in short order, which same procedures I wish were the custom in civil life; for the tragedy of this "anti" business is with the unprotected child—let the old objector have a good case of smallpox or let typhoid lay him low for weeks, but the state should have something to say about the child. Typhoid inoculation was such a splendid object lesson that it must not soon be forgotten, but be carried on in private practice. It robbed typhoid of its terrors and scandals, such as were experienced in the Spanish war.

Not only was the recruit in bad physical con-

dition but mentally he rated, taken as a whole, at about the age of thirteen or the sixth grade. And why was this? Well, we are a little particular about mating our dogs and cattle and even the cats, but when we come to mating human beings we seem to totally ignore natural laws, and forget that "Whatsoever a man soweth, that shall he also reap"—and while many of these morons are immigrants, yet we have shown that we are fully capable of "rolling our own".

The army men decided that whiskers made too good a hiding place for germs so they provided safety razors for the men, much to the disgust of the colored troops, who were accustomed to the old style, the "safety" being ill adapted to the niceties of society.

The town boy had gotten his immunity while the country boy had not, the slim clerk could out-fight, out-march and out-starve the country boy, so after all there is some compensation in living in town.

The soldier must have absorbed some ideas of hygienic measures such as fresh air, bathing, cleanliness in general, but how runs his curve of forgetfulness? Let us hope that all is not forgotten.

Ill shaped shoes are a source of much discomfort, but the Munson last used in making the soldiers' shoes is making its way into general use to the great delight of many heretofore cabined, cribbed and confined feet.

But this thing of one in three of the boys being rejected should give the doctor pause, and wonder if he is as insistent on school inspection and medical examination as he should be, for he is frequently in a place of power, as on a school board, where he can inaugurate and enforce these measures.

J. W. M.

Original Articles

ANTIVIVISECTION VS. MODERN MEDICINE.*

GEORGE W. STILES, B.S., M.D., Ph.D.†

The continued progress of modern medicine depends largely upon the use of animals for experimentation; and legislation, either state or national, prohibiting the use of animals for this purpose will prevent further advancement along these lines. Many of the achievements in medicine during the past half century owe their success to the proper use of animals for investigational purposes, both from the viewpoint of the physician and the veterinarian. Since the problems relating to medicine are so diversified, and many of them common to man as well as to the lower animals, it is the purpose of this article to briefly discuss a few of the diseases belonging to each group, and point out some of the benefits derived from animal research; also the

necessity of the continued use of animals for these complicated issues. The subject matter will be presented under four general headings, viz:

- a. Diseases confined to human beings.
- b. Diseases of the lower animals.
- c. Diseases common to both man and animals.
- d. General, including proper diagnosis, the preparation of sera, viruses and bacterins, the standardization of drugs, and other experimental procedures.

a. DISEASES CONFINED TO HUMAN BEINGS.

Typhoid Fever. One of the great scourges of civilian and army life during the past century has been typhoid fever. During the Franco-Prussian war it is reported that nearly ten percent of the German army contracted the disease, and in four years of our Civil war there were 57,400 cases reported, resulting in the death of 5,360 soldiers, or nearly ten percent mortality.

The tragic experience with this disease during the Spanish-American war recalls the fact that seventeen percent, or one out of every six of the soldiers, developed typhoid fever, and that the death rate from this malady alone was more than from all other causes combined. It has been estimated that 50,000 lives were saved in the American army during the world war through the compulsory vaccination of the troops against typhoid fever. Of the 4,000,000 men enlisted there were 10,065 cases of typhoid reported, resulting in 213 deaths; had the same rate prevailed as in the Spanish-American war, there would have been 51,133 deaths. The reduction of the incidence and mortality of the disease can be attributed largely to the use of bacterins. Since the close of the war, there have been epidemics of typhoid reported in our country where the typhoid rate was nil among the returned soldiers, while among the unprotected portion of the population, the usual degree of infection was observed.

After the discovery of the typhoid bacillus in 1880, it was demonstrated that white mice could be rendered immune to typhoid fever by previously inoculating them beneath the skin with killed cultures of the typhoid bacillus. In 1896-97 Sir Almroth Wright, a British army officer, after much experimental work on animals, demonstrated that vaccination of man was practicable, having inoculated 3,000 soldiers in India. Col. F. F. Russell, of our Army Medical Corps (1909), after a trip to Europe, studying the methods in use there, returned and organized a vaccine laboratory in this country where the bacterins for federal use have since been prepared. Each batch of the finished material is carefully tested for sterility by injecting white mice, and the immunizing properties ascertained by inoculation of rabbits.

The use of animals is indispensable to the standardization of typhoid bacterins, which in recent years have come into general use throughout our country.

Diphtheria. Prior to the year 1895 the mortality in diphtheria was said to be from seventy-five to eighty percent of the affected cases; since

*Presented by permission of the Secretary of Agriculture before the Colorado Veterinary Medical Association, Fort Collins, Colorado, June 2, 1922.

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the introduction and use of antitoxin the death rate has dropped to about twenty percent, saving over 500 cases per 1,000 infected. With the administration of antitoxin during the first day of the disease the mortality is negligible, increasing in rate each day with the delay in the use of serum. The manufacture of this serum can only be accomplished by the use of animals.

Cerebrospinal Meningitis. This is another disease of human beings in which the use of serum has reduced the mortality from about seventy-five percent to twenty-five percent. Dr. Flexner and his associates used twenty-five monkeys and about one hundred guinea pigs in perfecting this serum, which proved to be an antidote to a deadly disease and has resulted in the saving of many lives and needless untold agony to mankind.

Yellow Fever. It is said there are about four hundred varieties of mosquitoes and that only one of them, the female of the species, carries the poison of yellow fever. In order to become infected, this particular kind of female mosquito must have bitten a yellow fever patient during the first three days of his illness. Moreover, it requires about twelve days for the organism to develop within the body of the mosquito before it can transmit the disease. These facts were demonstrated and proven by permitting infected mosquitoes to bite human beings, the only way to definitely establish positive evidence of the manner in which the disease was transmitted.

Dr. James Carroll, of the United States army, was the first volunteer; others followed. Several lost their lives; among them were Drs. Lazear, Reed and Carroll, the latter dying some years following his experiment from the effect of the yellow fever mosquito poison.

These men and others disproved the theory that infectious material was carried on shipboard, on clothing, bedding, etc., by sleeping in beds where yellow fever patients had died, and by wearing the same clothes worn by these patients, and finally by ingesting the black vomit without producing any ill effects; hence, it was definitely established that only the bite of a certain variety of mosquito could transmit the disease from one afflicted person to a susceptible individual.

Smallpox. Many years ago the Chinese used scabs of human smallpox to protect against fatal infections. In 1721 this method was introduced into England, and Jenner's experiments (1798) on cowpox paved the way for the use of smallpox vaccine in all civilized nations. In the Montreal epidemic there were 3,164 deaths of which eighty-five percent were among children under ten years old. Roch shows no deaths in Boston for a period of fifteen years in children under five years of age who were successfully vaccinated against smallpox, while among non-protected children the mortality was seventy-five percent. Outbreaks of smallpox in recent times only gain a foothold among people who have not been properly vaccinated against the dis-

ease; and without the use of animals, the vaccine could not be prepared.

Other Diseases. During sixty years prior to 1876, when Lord Lister introduced antiseptic surgery, 363,624 women died in Prussia alone from puerperal or child-bed fever; such cases are now very uncommon, thanks to modern surgical cleanliness.

During the Civil war ninety-nine percent of intestinal wounds were fatal, blood poisoning, erysipelas, hospital gangrene, lockjaw and numerous other fatal maladies were rampant, but with the introduction of modern surgery, developed through animal experimentation, these conditions have been greatly reduced.

Bubonic plague has ceased to be the terrible pestilence since the discovery of the relationship between fleas and rats in its transmission; this was only accomplished by experiments on rats and guinea pigs.

The great cholera plagues of foreign nations have been kept out of our own country only by quarantine and diagnosis through animal inoculation.

b. DISEASES OF THE LOWER ANIMALS.

Blackleg. Losses among cattle raisers from blackleg before the use of protective inoculation have been estimated at twenty percent to thirty percent of the annual calf crop. This tremendous economic loss has been greatly reduced by the use of vaccines, filtrates and aggressins. These products are manufactured, standardized and made possible through the use of animals.

Texas Fever. Some years ago more than three quarter million square miles of our Southern territory was infested with the Texas fever tick, an area three and a half times the size of the French Republic. Through the medium of animal experimentation it was ascertained that certain varieties of female ticks were the agents that transmitted the disease from diseased cattle to healthy ones. The young ticks, feeding on susceptible animals, reduced their milk from ten to forty percent, depending on the degree of infestation. Other losses of proportionate value are evident through emaciation, so that nothing but scrub herds were produced in infested areas.

Through the vigorous campaign inaugurated by the federal government, this area is being reduced every year, and soon the entire South will be freed from this pest. In areas formerly below the quarantine line, purebred herds have been introduced and the cattle raising industry has been placed on a profitable and substantial basis.

Hog Cholera. Since 1913 the losses from hog cholera in this country have been reduced approximately sixty percent, at an estimated saving of \$40,000,000 annually to the livestock interests. In unvaccinated hogs, the mortality sometimes reaches ninety percent of the entire herd, while in those protected against the disease through vaccination the loss is reduced to a small percentage. Hog cholera serum and virus can only be produced by the use of live hogs, consequently should the use of animals for

this purpose be denied, the economic loss from this avenue alone would be enormous.

c. DISEASES COMMON TO BOTH MAN AND ANIMALS.

Rabies or Hydrophobia. This is a highly infectious disease, fatal to both men and animals. Between the years 1890-1907 there were 35,639 persons bitten who were treated at the Budapest Pasteur Institute; of this number 159, or 0.44 percent, died of rabies. During the period 1890-1903, of 1,861 persons bitten by rabid animals who were not treated, 266, or 14.29 percent, died of hydrophobia.

The diagnosis of this disease is made possible by rabbit inoculation; also the attenuated virus for the protective and curative inoculation is prepared by using these animals.

Botulinus. Botulinus infection is reported in both men and the lower animals. The effect of this deadly toxin, produced by the Botulinus bacillus, is tested on guinea pigs, and serum for curative and preventive purposes is made by inoculating animals.

Anthrax. A disease quite common in some portions of our country. It is highly fatal to man as well as animals. The protective and curative measures against this disease are made possible by the use of animals for the production of serum which may be used with the attenuated cultures of the live organisms.

Glanders. Another disease communicable to man as well as the lower animals. The diagnosis of this disease is made possible by the use of animals for the complement-fixation test.

Tuberculosis. A disease widely recognized among all mankind and various species of the lower animals. The discovery of the tubercle bacillus and the modern method of treatment, diagnosis and prevention are largely based upon the use of animal experimentation.

Tetanus or Lockjaw. This disease may affect both man and the lower animals through the medium of infected wounds. Tetanus is treated or prevented by the use of serum made by animal inoculation.

d. GENERAL; INCLUDING PROPER DIAGNOSIS; PREPARATION OF SERA, VIRUSES, BACTERINS; THE STANDARDIZATION OF DRUGS, AND OTHER EXPERIMENTAL PROCEDURES.

Proper Diagnosis. In the study of many known diseases, the only means of making a positive diagnosis is by the use of some laboratory animal adapted to this purpose. The Wassermann test in syphilis requires the use of animal sera and products, while the positive diagnosis of suspected tuberculosis is made possible by guinea pig inoculation. Anthrax, hemorrhagic septicemia, blackleg, rabies, and other diseases are often diagnosed by the use of laboratory animals to identify and isolate the causative organism.

Preparation of Sera, Viruses, Bacterins. The preparation of biological products for protective and curative measures is only made possible by

the use of animals during some stages of the manufacturing process. Sera are usually prepared by inoculating some of the larger animals first with minute, non-lethal doses of either virulent or attenuated organisms, then increasing the dose over a period of time until massive doses are tolerated; the blood of the animal (in amounts whose loss he can stand without discomfort) is then drawn under aseptic conditions, tested and standardized for administration.

Standardization of Drugs. Determination of the purity and standardization of many drugs is accomplished by testing on animals; digitalis, for example, is a very useful and necessary drug in the treatment of certain cardiac disorders. Should this drug be under-strength or impure when administered by the attending physician, disastrous results might follow in critical cases.

New pharmaceutical preparations are tested on animals before prescribing them to human beings. Many valuable discoveries in the past have depended on animal inoculation, and future research along these lines will require the continued use of laboratory animals. Glandular extracts, as affecting various secretions and organs of the body, require the use of animals for their preparation and dosage. Vitamins, now recognized so essential to our food, are tested on animals by feeding experiments.

Physiological Processes. The study of the normal functions of the body can only be developed on living animals and our present knowledge of the circulation of the blood, digestive processes, secretion of the various glands, and pathological processes are dependent wholly upon animal uses.

In order to make these observations the animal must be under anesthesia, and the charge that dogs are used for this purpose without an anesthetic is unfounded, for it would defeat the very ends desired. Since the discovery of anesthetics, these operations are painless and do not cause undue suffering to the animal under observation. Studies on cancer, influenza, and a multitude of other diseases, the causes of which are yet to be determined, are all intimately linked with the use of animals.

The question finally resolves itself into the issue of whether man is to have dominion over the lower animals, and use them for legitimate purposes to relieve present and future suffering, disease and sorrow in the world, or whether through sentimentality and prejudice the scientific and medical achievements of the nations are to cease and progress along these lines be relegated to the period of the dark ages.

The Annual Session of the Colorado State Medical Society will be held at Colorado Springs, October 3, 4, 5. Headquarters at the Antlers Hotel. Dr. W. V. Mullin, Colorado Springs, is Chairman of the Committee on Arrangements. Dr. T. E. Carmody, Denver, is Chairman of the Committee on Scientific Work (Program Committee).

A CASE OF ORBITAL CELLULITIS INVOLVING BOTH ORBITS WITH A THROMBOPHLEBITIS OF RETRO-ORBITAL VEINS, CAUSED BY INTERSTITIAL GINGIVITIS.*

J. A. McCaw, M.D., DENVER.

The relationship between the cavernous sinus and the orbital veins is so intimate that they must be considered together in order to differentiate their diseases. The cavernous sinus

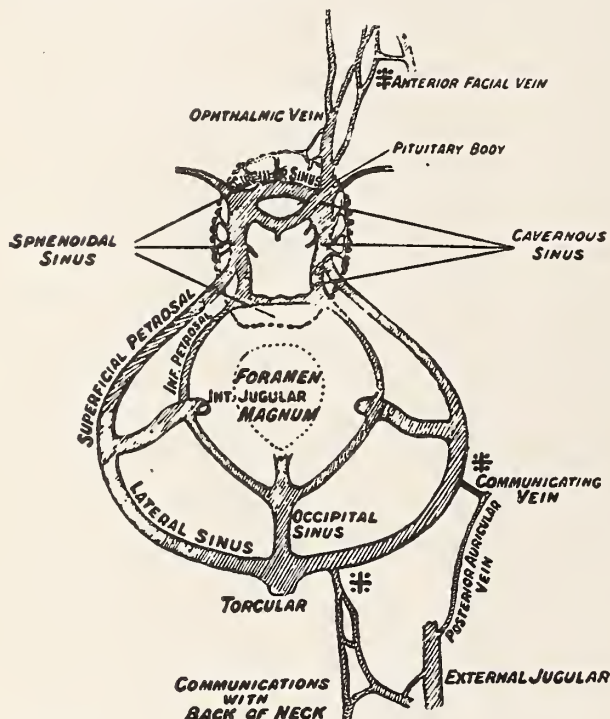


Diagram to show communication of veins of cavernous with venous sinuses of the cranium; showing also interrelation of transverse and cavernous sinus with external veins. Reproduced from London Ophthalmic Review.

lies wholly within the cranium. Its chief function is to carry the venous blood from the ophthalmic system about the orbit and face backwards along the petrosals to the lateral sinus and internal jugular vein. Infection may reach it in four different ways: from above by traumatic inflammation; from below by caries of the sphenoid bone and posterior ethmoid cells, and through the foramen ovale from the pharynx; anteriorly by infective processes in the orbit and face passing backward along the ophthalmic venous system; by sepsis originating posteriorly as from the ears. With the pathways in the ophthalmic venous systems we are now concerned. Through this vein infection may be carried from the upper eyelid and forehead, from the lachrymal gland, from the globe of the eye and its muscles, from the orbit, from the nose by the anterior and posterior ethmoidal veins, from the lower lid and face to the anterior facial vein. Infection from the teeth may reach

the superior ophthalmic vein by the following pathway: the anterior dental, the alveolar and buccal veins may carry venous blood to the pterygoid plexus, thence by a large communicating branch to the anterior facial vein, thence through the angular vein to the superior ophthalmic vein; a second anastomosis takes place between the pterygoid plexus and the inferior ophthalmic vein by a communicating branch. The palatine veins may carry infection from the soft palate and pharynx through anastomoses with the anterior and posterior ethmoids, thence to the ophthalmic. The pterygoid plexus sends small branches through the base of the skull to join the cavernous sinus. Another anatomical point that bears on the diagnosis of our case is that the central vein of the retina which probably most frequently drains into the superior ophthalmic may go direct to the cavernous sinus, or may drain to the inferior ophthalmic and that vein drain direct to the sinus:

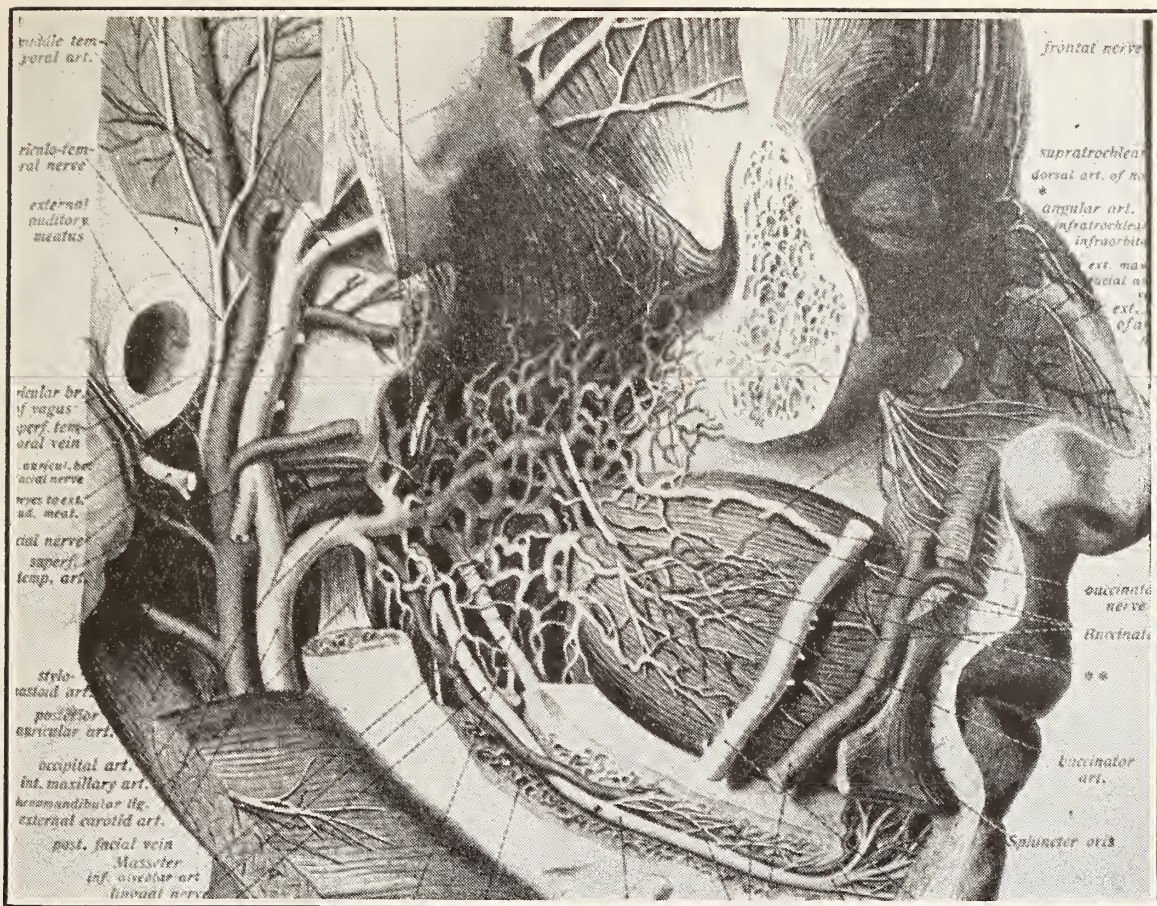
Case Report:

H. J., age thirty-four, is a man, muscular and robust, a fine specimen of physical manhood. His occupation is that of a stockman. His health previous to this illness was good. In the early spring of 1917, he began to have trouble with his teeth. Chewing of food made his gums bleed occasionally. He visited a dentist and received treatment. Just what was done I do not know. From the time of this visit to the dentist until April 8th, is an indefinite period. It may have been a few days to a week or ten days. On Sunday, the 8th, he complained of a severe headache, accompanied with the swelling of both eyes. He was not sick enough to go to bed, but was up and around. On Wednesday the 11th he was brought to my office by his family doctor.

Examination by inspection: You noticed at once that the patient was a very sick man. He walked into the office and sat in a chair during the preliminary examination. One noticed the very marked proptosis of both eyeballs. They appeared to be equally proptosed. The upper and lower lids of both eyes were markedly edematous. The palpebral conjunctiva was also edematous. It protruded in folds between the lids and looked to be white and bloodless from pressure. The face and neck were swollen and there was a bluish cast to the overlying skin. The veins of the face stood out like cords. The eyes were protruding, but there was no lateral displacement. There was no internal strabismus, nor diplopia. The upper lids drooped from the weight, but there was no ptosis. The pupils appeared to be equal and to react to light. We were unable to take the vision. Examination of the fundus showed no distension or tortuosity of the retinal veins. The margins of the disc were clear and well defined. There were no retinal hemorrhages.

Examination by palpation: There were no evidences of localized inflammation such as abscess. There was no thrill or pulsation of the eye ball. Pressure over the eyeball elicited no signs of tenderness. Dr. Claude Cooper examined the nose, throat and ears and found

*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.



Shows communicating vein between pterygoid plexus and the anterior facial vein. A possible route of infection from the teeth to cavernous sinus. Reproduced from the Atlas and Textbook of Human Anatomy, Sobotta and McMurrich, with the permission of the publishers, W. B. Saunders Co., Philadelphia.

them negative. A skiagram of the nose and accessory sinuses was made. It was negative. Wassermanns of both blood and spinal fluid were negative. Blood cultures were negative. The leucocyte count was about 15,000; polymorphonuclears eighty percent.

Examination of teeth: There was acute suppurative pericementitis, the overlying gum tissue being very much inflamed and swollen in both buccal regions. The gums bled on the slightest provocation and pus was found around every tooth. There was extensive destruction of the gum tissue as well as of the alveolar processes between the posterior teeth.

The patient was placed in a hospital immediately following our examination. His temperature at the time of admittance was 101.3-5°, pulse 90, respirations 24. That night the temperature rose to 102.3-5°, pulse 104, respirations 24. At this time we made a diagnosis of cavernous sinus thrombosis and gave a grave prognosis. On April 12th the temperature went to 103.3-5°, pulse 120, respirations 30. There was no delirium and the mind was perfectly clear. Urinalysis showed there was no albumin. There was a slight evidence that the edema of the lids was at a standstill or a little reduced. April 13th. Today there was no doubt that the edema was slightly reduced and collateral circulation was being established. Dr. Thomas J.

Gallagher was invited by the family to advise with us on the case. He made a most careful and exhaustive examination of the nose, throat and ears. They were negative. The third, fourth and ophthalmic branch of the fifth and sixth cranial nerves were tested. There was no oculo-motor paralysis, nor of the superior oblique or external rectus muscles. Dr. Gallagher doubted the correctness of our diagnosis of cavernous sinus thrombosis. The temperature on this day was 104°, pulse 108, respirations 28. For the next three days the temperature remained around 103°, pulse 105, respirations 26. During the 17th, 18th, 19th, 20th and 21st the temperature reached 104.2-5°, pulse 112, respirations 28. This was the highest point the temperature reached. There were daily remissions of several degrees in the fever. It was a septic temperature and was accompanied with chills. The temperature dropped a little on the 22nd, or the 11th day in the hospital, and the fever gradually subsided and the patient went home on May 8th, well.

Etiology: From the history of this case I believe we are justified in stating that the cause of this thrombosis was the teeth, acute suppurative pericementitis. The dentist stated that by using pressure it was possible to squeeze pus from the gums. The infection was quite marked in the regions of the upper molars on both sides

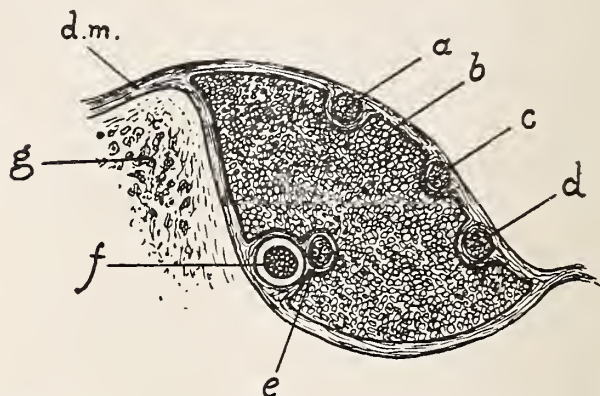
and around the incisors. But the lower teeth were also infected. The exciting cause was the stirring up of this infection by unwise manipulation on the part of the dentist. Out of 182 cases of sinus thrombosis reported by Dwight and Germain, fourteen originated in the mouth, the focus not being specified. In Dr. Jackson's twenty-eight cases one came from a tooth. Simpson reported one case from a tooth.

Symptoms: Pain is usually a prominent symptom; the patient complained of headache and uncomfortable feeling around the eyes, but pain was not prominent. I do not recall whether the headache was deep-seated or supra-orbital. There was a septic or pyemic temperature, $104\ 2-5^{\circ}$, not as high as you usually find in other case reports, where 106° is not infrequent. The pulse was rapid; the highest was about 120, a little lower than this in the average. There were profuse perspiration, rigors and chills. We can say that these symptoms were not severe.

The ophthalmic symptoms: Ramsey states that proptosis is a cardinal sign in affections of the orbit. It occurs in both eyes in leukemia, in exophthalmic goiter, in serous and suppurative inflammations of Tenon's capsule, in varicosities of the orbital veins, in tumors of the lachrymal gland, and is to be found in so many different diseases that the correct interpretation of its significance is often an exceedingly difficult matter. Again he states that cellulitis confined to the orbital cavity rarely occurs on both sides simultaneously, but that in thrombosis of the cavernous sinus, the implication of both orbits is frequent. In sinus thrombosis the proptosis usually begins in one eye, then in from one day to ten days the other is involved, but not always. It may occur in the second eye in a few hours. In one case reported by Smith, at nine o'clock in the morning one eye was involved and when he returned to the hospital in the afternoon of the same day the other eye was proptosed. In this case, as far as we have been able to learn by most careful questioning, both eyes were proptosed simultaneously unless the proptosis began in one eye and extended to the other during the night. Both sides are not always involved. It has been established by autopsy that the thrombotic process may be limited to one side. In one hundred and thirty-four autopsies reported by Dwight and Germain, a statement being made of the sinuses involved, thirty-one cases were limited to one sinus. May not this process be limited still further and be confined to the orbital vein? This is what happens when the orbit is invaded in facial erysipelas. You get a thrombo-phlebitis in the retro-orbital veins limited to the veins without the involvement of the cavernous sinus. On the other side Feyer states in his paper that a thrombus cannot form in the ophthalmic veins without extending ultimately to the cavernous sinus.

The retinal findings in cavernous sinus thrombosis as a rule are congestion and tortuosity of the retinal veins, papillary edema, papillary atrophy or optic neuritis; in addition there may be retinal hemorrhages. In the lit-

erature there is a certain percentage of cases in which no fundus changes are found. These cases need some explanation. Dwight and Germain state cases are reported so inaccurately that it is really impossible to judge as to whether good reason existed for the diagnosis. St. Clair Thompson states the fundus may be normal in rapid cases, that is that the infection is so virulent and the toxemia is so profound that the patient is overwhelmed and succumbs before fundus changes can take place, or the fundus may be normal at the very beginning or commencement of cases. Dr. Jackson writes in many cases only moderate blurring of the margins of the disc with some enlargement and tortuosity of retinal veins appears before the fatal termination. Probably this much change in the eye grounds could be found in nearly all cases. I do not see how you can have cavernous sinus thrombosis involving both sides and not have the retinal changes referred to above unless collateral circulation relieves the blood blockade early, but I can understand how there may not be any fundus changes in the presence of a thrombo-phlebitis of both ophthalmic veins with the central vein of the retina draining direct into the cavernous sinus and not into the ophthalmic vein.



Shows the relative position of the structures in the right cavernous sinus viewed from behind. The third nerve, the fourth nerve, the first division of the fifth nerve and the sixth nerve. Reproduced from the American Encyclopedia of Ophthalmology; Cleveland Press.

The nerve and muscle tests: Abducens paralysis with the eye turning in is often the first symptom of cavernous sinus involvement. It may be present before there is any exophthalmos and it may not be present at all, yet we would reasonably expect pressure symptoms to arise in cavernous sinus thrombosis from the fact that this nerve lies wholly within the sinus. Its absence has some diagnostic value. The nerve involvement is most difficult to ascertain because of the extreme proptosis and lid edema. However, I believe there was no paralysis and no dilatation of the pupils. The fourth nerve was not involved.

Diagnosis: Dr. Gallaher believed that the cavernous sinus was not involved, because there was no sign of intra-cranial pressure, as evidenced by the absence of choked disc; because

of the simultaneous involvement of both eyes, the lack of the usual bacteremia, the absence of the typical thrombotic temperature as evidenced by the rapid excursions of the temperature curve, and because the leucocyte count did not exceed 15,000 and the differential count showed about eighty percent of polymorphonuclears; these with the absence of actinomycosis and trichiniasis. Other points in the diagnosis worthy of serious consideration: The patient was not as sick as they usually are in cavernous sinus thrombosis. With both eyes involved he walked into the office. These patients are usually confined to bed. The temperature was not as high, nor the pulse as rapid as in many thrombotic cases. The absence of fundus changes. The patient recovered; only seven percent of cases of sinus thrombosis recover and he recovered without injury to his vision. In Jackson's twenty-eight cases, four recovered, one with good vision. I have not verified this patient's vision by accurate taking of his fields. On the other hand we have a definite focus of infection with proptosis of both eyes and edema of both lids, with the improbability of a double thrombosis, that is a thrombosis in each orbit. Chance reported a case in a negress of thirty-five, double proptosis and lid edema, eyeball fixed, due to pneumococcic conjunctivitis.

Treatment: Was symptomatic. Ice compresses to the eyes, baths for the temperature, liquid diet and careful watching of the case.

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DISCUSSION.

Edward Jackson, Denver: This extremely interesting case illustrates the difficulties of diagnosis, and particularly the fact that the diagnosis can be most certainly arrived at after you have the whole history of the case, including its result. I have no hesitation in saying that I thought, that from the early condition, this patient had a thrombosis of the cavernous sinus. There was the very great swelling, bilateral, but it seems evident that it was due to an infection that was general throughout the body to a very considerable extent, the teeth on both sides, and extending back probably to the pterygoid plexus, and the veins involved.

The point that Doctor McCaw brings out of the absence of marked ophthalmoscopic changes, is probably of considerable consequence. It would not apply to many cases. If the retinal vein empties pretty directly into the veins in the back of the orbit, you probably will have either early or much more likely late marked fundus changes, but here with bilateral changes in the face, lids, orbits, the freedom of the fundus from pathologic change is certainly worth attaching considerable importance to.

The bilateral character of the swelling may be of very great significance as pointing towards cavernous sinus involvement, where the original lesion has been clearly on one side, and then the other side becomes involved. I think that it is still more important where the original lesion has been on one side, and the swelling becomes markedly greater on the opposite side than on the side originally involved. As far as I know, that has only occurred in the cavernous sinus involvement. For instance, when you have some involvement of the right organ, and in a day or two much greater swelling in the left organ; that probably occurs, so far as reported cases would indicate, only when the cavernous sinus has been involved.

One other point that is of some importance in these cases: Thrombus—venous thrombus, at least—is very often a local disease of the coat of the vein, with partial obstruction of the venous channels. I don't know whether we ever have absolute obstruction of the larger venous channels by thrombus.

In the veins of the retina, where we can see what is going on, we see the marks of very decided thrombus in different parts of the fundus, and yet those parts of the fundus still retain a considerable amount of vision, still retain light perception, and sometimes perception of moderately sized objects, and there I can see there is the process of thrombus in the veins, and that there certainly is enough circulation through the veins to keep up a rather high functional ability of the point of the retina, whose function is very quickly impaired and entirely destroyed by entirely shutting off the circulation.

These cases are not so very rare. Many of them have gone unrecognized in the past. They arise quickly and they demand that the general practitioner, who is very likely to first see the case of thrombus, either involving the veins of the face, orbits or cavernous sinus, should be ready to entertain the thought of such lesions, and to weigh the evidence, to determine whether something of the kind has happened.

Robert Levy, Denver: Our knowledge of thrombosis of the large cavernous sinuses of the skull has undergone considerable change of late years because of the ease with which the sigmoid sinus can be explored during mastoid operations, and disease of the sinus studied. Here we have the opportunity of viewing the lesion and studying its pathology ante-mortem. From the reports of many excellent men we have learned that sinus thrombosis is not necessarily fatal, even though the thrombus is not relieved by surgical interference. This position has been sufficiently proved, although contrary to the views that we heard some years ago.

In the case reported it is necessary to show that the lesion was not a thrombus of the cavernous sinus. The best evidence in the report of this contention is that the patient recovered without operation; but, as I have said, in view of the fact that cases of sinus thrombosis have gotten well without operation, when involving the lateral and sigmoid sinuses, we must conclude that it is possible for even a thrombus of the cavernous sinus to recover. The most reasonable diagnosis in the case presented is thrombus of the cavernous sinus, in spite of the fact that the patient recovered.

Melville Black, Denver: It has always been an interesting thing to me that we do not have more evidence in the retina early. One of the earliest symptoms of cavernous thrombus is the edema of the lids and the edema of the conjunctiva. Now, the veins that drain this particular region are not so intimately associated with the cavernous sinus as the central veins of the retina, and why it is we do not have as one of the very earliest manifestations a very serious damage to the retina, is rather difficult to understand. I have never seen a case of cavernous sinus thrombosis recover. The picture presented by Dr. McCaw in many respects is strongly indicative of cavernous sinus thrombosis. The low temperature, the retaining of his intellectual faculties and the final recovery would have to

be weighed against this diagnosis. But if that was not cavernous sinus thrombosis, what was it?

F. R. Spencer, Boulder: One feature of this which I would like to emphasize, and Dr. Jackson touched upon it, is that probably this man's recovery, in the absence of fundus changes, is very largely to be attributed to the fact that the thrombus did not completely obstruct the cavernous sinus. We see in cases of lateral sinus thrombosis any number in which the thrombus only partly occludes the vein, and as Dr. Jackson mentioned, this probably accounts for the fact that the return venous flow from the central vein of the retina was not interfered with. I think Dr. McCaw is to be congratulated for having very thoroughly studied this case, and for so thoroughly working it up. I am glad he can add one more case to those who have recovered, because the few cases I have seen have not recovered—they have all been fatal.

Dr. McCaw (closing): My only feeling in this case, of course, is, I simply wanted to present the facts as we saw them, and whether this diagnosis is correct or not, I would not want to be positive. After looking over the literature—and I think I have read everything I could get my hands on—I came to the conclusion that a man would be unwise to be dogmatic in a case like this. But there are cases, and some of the authors I have found made the attempt to differentiate between cavernous sinus thrombosis, and a cellulitis, due to a thrombosis. The only thing they have seemed to emphasize was that the symptoms, where it was confined to the orbit, and did not involve the sinus, were milder, and I just leave the case with you. I wanted to put it on record. That was the object in presenting it, because I think that so far as ophthalmology is concerned, we like to put these cases on record.

THE STOMACH AND CIRCULATORY SYSTEMS AS RELATED TO ONE ANOTHER.*

JULIUS L. MORTIMER, M.D., DENVER.

Heart and stomach are neighboring organs, separated from one another by the relatively thin membrane of the diaphragm and the serous covering on both sides. The former changes its position during respiration, whereby the heart and stomach assume different topographical relationship. Since both organs receive the same nervous supply we may encounter reciprocal reflex toxic influences; it may therefore be difficult to differentiate which is the primarily diseased organ and which is secondarily involved.

In cardiac insufficiency there is often observed an early passive congestion of the stomach. Patients with heart disease have been frequently known to seek the services of a physician for disturbance of the stomach. Gastritis due to stasis may be found in weakness of the right as well as of the left side of the heart. Subjectively these patients complain of anorexia, nausea, eructation, feeling of pressure; while vomiting is rare. We are therefore dealing with functional disturbances of the gastric cells with sub- or anacidity as a result of the circulatory anomaly. According to Krehl there is a certain incongruence between the chemical findings and the slight anatomical changes found in the gastric mucous membrane. These are the cases in which digitalis proves to be the best remedy for the stomach.

*Read by title at the annual meeting of the Colorado State Medical Society, October 5, 6, 7, 1921.

Primary heart and vascular disease may furthermore result in embolic or thrombotic processes of arteries supplying the stomach, partly as a result of endocardial or as a result of atheromatous processes. Regarding their significance in the pathogenesis of erosions or ulcer ventriculi especially of the smaller curvature and the pars pylorica, there is a wide difference of views. The splenic artery from which the left inferior coronary artery is derived, stands third in frequency in the classification of arterial disease, according to Rokitsky (ascending aorta, transverse aorta, splenic artery). Chemically these cases follow the course of a chronic recurring gastric or intestinal bleeding. After a heavy meal which causes an increased demand upon the blood supply, anginal attacks may result, known as abdominal angina or vascular crises of Pal which may be mistaken for gastralgia. This infrequent diagnosis may be reached only when the patient is beyond forty years of age, with evidence of changes elsewhere in the arterial system. It is of utmost importance to rule out gastric cancer or ulcer, also cirrhosis of the liver. The violent embolic pain followed by collapse, the finding of blood in the vomitus and in the stool, also the favorable results of a rest cure and vascular remedies are significant factors. The significance of atheromatous processes for the genesis of peptic ulcer should not be overlooked in those over forty, whereas in younger individuals it plays no important part. Organic achylia may result from arteriosclerotic changes as a basis in the aged.

In angina pectoris, we may deal either with a true coronary sclerosis, luetic angina pectoris, or with nicotine angina, in which there is associated a smoker's gastritis, the early manifestations of which are a feeling of pressure over the region of the stomach or a distinct epigastralgia which may be mistaken for an ulcer. In doubtful cases the therapeutic measures employed should be those of a true angina. Here the part played by rational therapy directed towards the stomach in diminishing any additional tax upon the heart is of the utmost importance; for with the general regulation of the patient's mode of living, medical and physical therapy, the gastric function should receive the closest consideration in coronary sclerosis. Since disturbance in gastric chemistry is not infrequently a hyposcretion and if there is also present an associated gastritis then the administration of pepsin with hydrochloric acid will serve a useful purpose. Then again an attack of angina pectoris may be relieved by belching after an effervescent mixture is given. Of the greatest importance, however, is the regulation of the diet and not in the sense of the much employed lacto-vegetable arteriosclerotic diet, which causes bloating, but light frequent meals in which fluids are restricted. The therapy directed towards digestion acts in a beneficial manner from a psychic view point in these unfortunate individuals who are in constant fear of an approaching attack. It diverts their attention from the serious nature of their illness

and awakens in them new hopes. It suffices fully that other members of the family are informed regarding the primary disease, whereas the patient should receive a diagnosis with an optimistic prognosis.

Just as the stomach may be involved, whether symptomatically or organically in diseases of the heart, so the reverse may take place. Huchard goes further by stating that a latent disease of the stomach may manifest itself only by palpitation and functional disturbance of the heart. Since the pulse rate may be accelerated and the blood pressure increased after a heavy meal when the heart is healthy, there will be a more marked influence with a diseased or nervous heart. This phase has been described under such syndromes as asthma dyspepticum, digestive reflex neurosis, vagus neurosis.

A characteristic finding in these cases is that the severer organic diseases of the stomach, such as ulcer and carcinoma are less apt to be accompanied by cardiac distress, whereas it is more apt to occur with the lighter dyspeptic disturbances. It seems that the more subtle irritation acts more severely upon the cardiac mechanism than does the coarser one. Changes in the rhythm of the heart may be observed not only in the digestive disturbances of children, but also in those of nervous adults. Palpitation of the heart, or over the body in general may be observed in anacidity with the resulting intestinal indigestion; this will improve with local and general therapy. Bradycardia often accompanied by extra systoles may be manifested in a nervous, vagotonic individual, generally arising from irritation of the vagus terminals in the stomach. This may easily lead to erroneous diagnoses such as myocarditis, Stokes-Adams syndrome or brain tumor. In constitutional anacidity bradycardia has also been observed. Cardiac discomfort may be caused by certain foods for which a neuropathic individual may have an idiosyncrasy or anaphylaxis though he may be unaware that the particular food has been taken. All these casual occurrences which arise from a reflex toxic basis between the primarily affected stomach and the heart may also be observed in organic heart disease.

Here we come to the consideration of another important factor—narrowing of the heart space by the distended over-filled stomach. The view that the distended stomach will raise the diaphragm and cause it to press against the heart has long been held; scientifically, it has been demonstrated by the roentgen ray. When the gas pocket, "Magenblase", which is normally present in the fundus of the stomach, becomes excessively distended either by aerophagia or as a result of abnormal fermentation or atonic dilatation of the stomach wall it causes a left sided pathological elevation of the diaphragm which may lead to a purely mechanical narrowing of the heart space. This mechanical relationship between heart and stomach may throw some important light from a diagnostic and therapeutic standpoint, therefore the term "gastrocardial symptom complex" has been introduced into

medical literature by L. Roemheld. This syndrome generally arises on the basis of a labile nervous system. We have therefore a primary accumulation of gas, as a rule in the stomach and at other times in the splenic flexure of the colon, causing a secondary disturbance of the heart. The question arises whether a healthy heart can be altered in this manner. Patients subject to very striking gastrocardial attacks with organically intact hearts have been seen to indulge in strenuous bodily exercise between attacks without the slightest discomfort. Naturally nervous individuals and those with known organic disease will show a severer reaction as a result of narrowing of the heart space, and if the condition is prolonged it may result in material damage to the heart. If these individuals who generally parade behind the flag of hysteria or cardiac neurosis are observed with the roentgen screen even before breakfast, one may see a good sized accumulation of gas in the stomach. Several hours after a meal the subphrenic gas accumulation becomes excessive, and with the pressure upwards against the diaphragm the apex of the heart is raised, giving the heart a horizontal position. On an empty stomach or when the gas is removed the pathological displacement is relieved.

The subjective complaint of a patient with gastrocardial syndrome is more often directed towards the heart than towards the stomach. Owing to the pressure under the left costal area, there may be embarrassment of respiration caused by the high position of the left half of the diaphragm, attacks of vertigo caused by the bend in the large thoracic vessels and, finally, the vagotonic bradycardia and extra systole. These individuals consider themselves sufferers from heart disease; however, on close questioning at least in those cases in which the heart is organically sound, one discovers that exercise, even climbing, after a heavy meal causes no distress. In doubtful cases this test is a more important criterion than the other physical heart findings as to whether a patient with gastrocardial disturbance possesses a healthy or diseased heart. It is also a valuable guide as to the subsequent therapy.

In every case, however, the rational treatment of the stomach should be placed in the foreground. It is considered good judgment to enlighten the patient regarding the true condition, thereby relieving him of the dread of heart disease. The thoughts are to be directed towards the stomach disturbance and effort made to determine the presence of any psychic factors. Removal of the gas accumulation of the stomach with the tube should be practiced. A few stomach washings may prove most effective. Of importance are frequent small non-bloating meals, thorough mastication, avoiding air swallowing, and observing all dietary rules closely. After the principal meals the patient, rather than be instructed to assume the reclining posture, should be allowed to sit up. Furthermore, light forms of exercise may be permitted after meals if the heart is organically sound. It seems to have a beneficial influence upon the heart sen-

sations which are then apt to arise. Of medication, hydrochloric acid with pepsin or the alkalis with belladonna and charcoal are in order; nerve sedatives may also be employed.

Of the greatest significance in these cases is the training in correct and thorough diaphragmatic breathing. Those with heart disease may practice these exercises in bed, whereas the others may indulge in systematic walks, climbing and athletics. Also one sided methodical breathing with fixation of the right side will act in a beneficial manner. The distressing effects upon the heart of the subdiaphragmatic accumulation of air are thus most effectively combated.

There is no more gratifying result than that which follows correct treatment of patients having the gastrocordial symptom complex. Instead of making the schematic diagnosis of arteriosclerosis and prescribing iodides and a bloating vegetable diet which only aggravate the symptoms, the attention should be directed to the stomach, for it is only then that brilliant results are obtained. Walter Broadbent correctly states that in practice, treatment of the stomach and nerves are more successful than treatment of the heart itself.

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THE OPERATIVE TREATMENT OF GOITER.*

LEONARD FREEMAN, M.D., DENVER.

Everyone must admit that, with due consideration for the condition of the patient, certain goiters always require operative intervention, irrespective of what may be our opinion as to the desirability of goiter operations in general. This is true, for instance, when there is a suspicion of malignancy; when there are pressure symptoms affecting the breathing, the swallowing, the voice or the circulation; when an unsightly deformity exists; and when the thyroid enlargement is substernal or pharyngeal, recognizing, of course, that in the last-named situations both the operative difficulty and danger will be increased. There are, however, many cases in which the necessity for operating is still a matter of energetic dispute. Without attempting to settle this contention, let us consider some of the questions involved when an operation has been decided upon.

Pre-Operative Preparation.—From a surgical standpoint, the most important thing about a goiter is whether it is non-toxic or toxic. The former requires no special preparation, while in the latter an adequate preparation may mean the difference between success and failure. In this connection it always should be borne in mind that the operation itself, when properly done, is almost free from danger in most instances—in fact it is one of the safest and most satisfactory of all major operations. The danger really lies in the condition of hyperthyroidism, when this is present.

What is necessary to put a patient with hyperthyroidism into proper condition for an operation varies according to the severity of the toxic symptoms. But little is indicated in the mild cases; while the more severe ones tax our resources to the utmost—for instance, when the basal metabolic rate is over forty, the pulse more than one-hundred, the tremor and nervousness marked, with dyspnea and loss of strength. We should not be influenced too strongly, however, by any one thing alone, such as the metabolic rate, but should rest our judgment upon a consideration of all the signs and symptoms taken together.

Freedom from anxiety, fear and worry (to which the physician should contribute by his tactfulness), combined with absolute rest in bed, for days or weeks as may be necessary, often is sufficient, especially if a nonstimulating diet is strictly adhered to. Medication, in the way of mild sedatives and heart tonics, occasionally is of service also, but the mental and physical rest really are the useful things.

When the rest-cure fails, or the symptoms are too severe to justify its use alone, it is necessary to resort to more energetic measures, such as the application of ice-bags to the chest and throat, the use of the x-ray, injections of boiling water or quinine-and-urea into the gland, or the ligation of the superior thyroid arteries, some even tying the inferior thyroids as well.

In spite of the popularity of ligation and its undoubted effectiveness, I believe that success generally can be achieved without so drastic a procedure, which often is almost as trying an ordeal for the nervous patient as the radical operation itself. The x-ray, if used intelligently, frequently is quite efficient, and I have found the injection method also very satisfactory. At first I used for this purpose boiling water, as suggested by Porter, but later I substituted quinine-and-urea hydrochlorid, because it was easier to use and was less disturbing to the patient. A few cubic centimeters of about a forty percent solution are injected deeply into various portions of the goiter, repeating the procedure every few days, if necessary, until the required effect is obtained. The action of the drug is to produce a sort of solid edema, thus inhibiting secretion; while boiling water, on the other hand, actually destroys the glandular tissues. The effect of both of these agents, however, like ligation, is temporary only, and an operation should always follow before the improvement is lost.

Crile's suggestion of "stealing" the goiter, or in other words giving an anesthetic and operating under the pretense of carrying out some sort of non-operative treatment, is of questionable value. It never has been widely accepted and has been largely discontinued even by Crile himself. But there can be no doubt as to the value of gaining the patient's confidence and allaying his fears, because fear and excitement increase the operative dangers quite substantially. In order to minimize these states of mind Crile also advocates operating in the patient's own room; but the technical disadvantages of this would seem to be great enough to more

*Read as part of a symposium on diseases of the thyroid gland, before the Medical Society of the City and County of Denver, December 6, 1921.

than counterbalance its rather dubious advantages.

Anesthesia.—There has been much controversy over the best means of inducing anesthesia in operations for goiter, some surgeons preferring the local method while others adhere to the general. Personally I am strongly inclined to agree with John Deaver and many others that gas and oxygen or plain ether, perhaps preceded by morphine, are the most appropriate anesthetics. In several hundred operations, upon all sorts of cases, I seldom have had reason to regret their employment. There can be no question that a general anesthetic adds much to the facility of operating and to the ease of mind of both operator and patient. The reversed Trendelenburg position, as pointed out by Ochsner, lessens both the bleeding and the amount of anesthetic required. In cases of dyspnea due to pressure I have found intra-tracheal anesthesia invaluable. When it is properly employed, one almost might say that the patient could not stop breathing, even if he wanted to.

The advocates of local anesthesia claim that it has a number of advantages:

(1) It is less trying to the patient's powers of resistance; but when one considers the terrible mental ordeal through which a nervous subject must pass when conscious, this assertion does not seem to be particularly well founded. Nevertheless, local anesthesia undoubtedly has a place in certain cases, especially in preliminary ligations.

(2) There is less danger to the recurrent laryngeal nerves which control the voice, because the patient can talk during the operation and thus give warning of too close an approach to these nerves. But this claim loses its force when one considers that the better methods of operating do not endanger the nerves anyhow.

(3) Pneumonia is less frequent. Statistics, however, fail to support this assertion, pulmonary complications practically being as frequent following local as general anesthesia. In fact, we are beginning to understand more and more clearly that pneumonia is not due to the anesthetic nearly so often as was formerly supposed, but to other less evident causes.

The Operation.—As regards the method of operating, the technic will vary according to the preferences of the operator, but there are certain points upon which emphasis should be placed:

(1) Hemorrhage must be controlled adequately, either by preliminary ligations, by the proper placing of a wire tourniquet, or by the use of many forceps.

(2) The parathyroids and recurrent laryngeal nerves must be protected, either by leaving a portion of the posterior glandular substance, or by the method of wedge-resection, which perhaps is preferable.

(3) The operation should be done quickly and smoothly so as to conserve the patient's forces as much as possible.

(4) It should be appreciated that it is better to remove a wedge from both lobes than it is to resect one lobe alone; not only for cosmetic reasons, but also to avoid leaving dis-

eased tissue in toxic cases—the real cause of the trouble might be in the lobe which was left untouched.

(5) In toxic goiters one must be sure to remove enough, failure to do this being a frequent cause of poor results. A very small portion of one lobe is sufficient to carry on all the necessary glandular functions.

Post-Operative Care.—The disquieting symptoms of hyperthyroidism which follow operation upon bad toxic goiters may be diminished much by the liberal use of ice-bags upon the neck, chest and abdomen. Especially is this true when the temperature is elevated, although some of the bags must, of course, be removed when the fever leaves. It even may be desirable, according to Crile, literally to "pack" the patient in cracked ice, applied over a rubber sheet, in order to control extreme nervousness. The beneficial effects of this treatment are really astonishing—the temperature falls, the wild restlessness diminishes, the pulse improves and the other disquieting symptoms tend rapidly to disappear. Sedatives should be used sparingly and with caution, but it is better to give a dose of codeine or even morphine than to permit the patient to exhaust himself through nervousness and lack of sleep. In many instances, especially if vomiting exist, it is desirable to give a moderate amount of water by proctoclysis.

In conclusion, it should be emphasized that in toxic goiters early operations give the best results. When operation is delayed until serious pathologic changes have taken place in the heart and nervous system not only is the danger of intervention increased, but the possibility of cure is diminished correspondingly.

CHRONIC CARBON MONOXID AMBLYOPIA.*

HENRY M. THOMPSON, M.D., PUEBLO.

There is infrequent and very limited reference in ophthalmic literature to carbon monoxid poisoning, despite its injurious effects on the eye and its central nervous supply. The general effects are considered to some extent, but even here your attention is rarely directed to its destructive and insidious poisoning. The large number of garages with millions of automobiles producing the gas in quantities far beyond any possible estimate are an ever increasing menace. Add this increasing production to other existent sources, and it can be readily appreciated that we are constantly confronted with a danger not generally recognized.

In W. H. Wilmer's admirable survey of the subject (*American Journal of Ophthalmology*, Feb., 1921), he gives Schumaker's average findings of the atmosphere of five garages as containing 0.042 percent carbon monoxid and reviews other productive sources, such as carburetted water gas, which contains thirty percent. Apfelbach claims that the steel industry produces about twenty-six percent of carbon

*Read before the Pueblo Clinical and Pathological Society at its annual meeting, December 14, 1921.

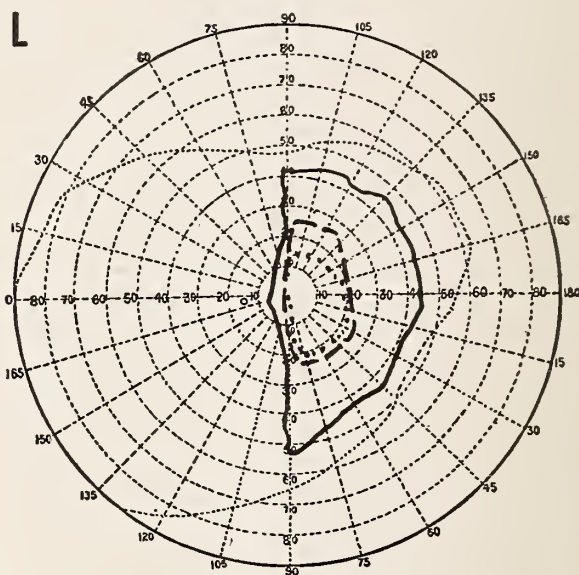
monoxid and the exhaust from the gas engine 9.35 percent. He adds that Henderson states it is fatal for man to breathe for an hour otherwise normal air which is contaminated with four percent carbon monoxid. However, I refer to the long continued or intermittent exposure cases.

Are we not dealing with the poisonous effects of this gas in a limited number of patients, whose obscure psychic phenomena are unexplained, where frequent headaches, blood changes, gastric disturbances, general languor and lowered resistance, with ocular and aural hallucinations manifesting themselves without our being able to explain their etiology? We, as physicians, must of necessity recognize this ever present poison which can produce chronic symptoms, simulating many changes familiar to neuro-pathology, and affect the ocular mechanism in varying degrees producing severe interference with visual function, either with or without discernible pathology. Carbon monoxid poison is more frequently an etiological factor in these changes than we are led to believe. Different forms of hemianopsia, contraction of fields, disturbance in color perception and marked decrease in visual acuity are probably most frequently encountered. The symptoms may suggest those of multiple sclerosis, or constitute the ocular symptom-complex of central nervous involvement. Any form of muscle imbalance or paralysis of one or more ocular muscles, even to the extent of a complete ophthalmoplegia with exophthalmos may be found. Hemorrhages in the retina, choroid and conjunctiva may occur and be associated with a neuroretinitis of varying degrees.

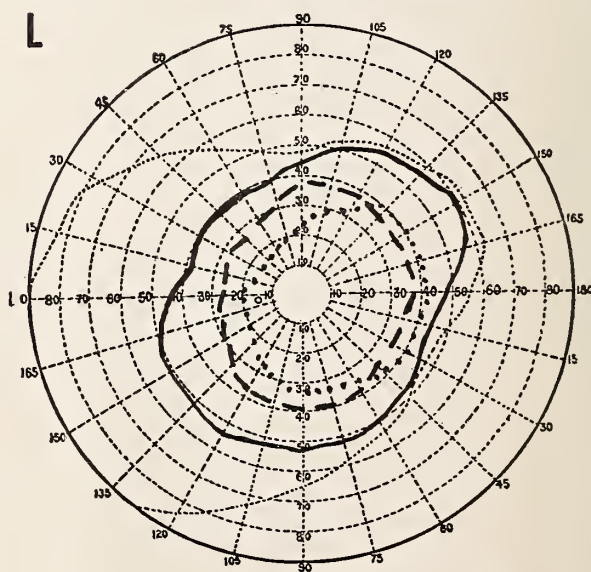
Although opinions differ as to the form carbon monoxid takes in the blood stream, it is generally conceded that the hemoglobin has a great and special selective affinity for carbon monoxid. On coming in contact with undiluted blood, the carbon monoxid forms a reasonably stable compound with the hemoglobin, producing thereby carboxy-hemoglobin. The carbon monoxid having the greater avidity for hemoglobin, the oxygen is displaced and the oxygen carrying power of the blood destroyed, resulting in tissue oxygen starvation and chronic pathological changes in certain central nervous tissues which hold a peculiar selective affinity for this particular chemical substance. It is a purely chemical change; the molecules having the greatest mutual attraction joining to the exclusion of the less attractive.

Case report: Mr. A. F. W., age 30, first consulted us February 17, 1921, complaining of severe headaches and inability to see well. The family history had no special interest. The patient had enjoyed good health up to last winter with the exception of having had influenza two years before. He is employed in a large Ford garage, and feels better in the summer months. He is a large, robust individual, and at the time of first examination was pale of countenance. He complained of muscle weakness, becoming easily fatigued, and had a poor appetite. He confessed to the internist that he was disturbed by unus-

ual dreams. I was unable to ascertain this fact or determine that the patient was subject to any form of hallucinations. Vision in the right eye was counting fingers at two feet; left, 20/40. The field of left eye was completely obliterated on the temporal side, the nasal side being markedly reduced to form and colors. The fundi showed no pathology. The retina and disc were apparently of normal color and the vessels regular in caliber. The pupils reacted normally, the right at times being larger than the left. Under atropine the dilatation was large and regular. Refraction with the retinoscope gave us: O. D. + 1.00 sph. $\ominus$ + 1.00 cyl. ax. 105, vision nil; O.S. + 1.25 sph. $\ominus$ + 0.75 cyl. ax. 75, vision 20/40. An internal examination revealed nothing



NAME... A.F.W. Solid line - form field
DATE... 2-17-21 Dashes - red field.
BOOK No. DATE Dotted line - green field.



NAME... A.F.W. Solid line-form field.
DATE... 10-12-21 Dashes - red field
BOOK No. DATE Dotted line- green field.

of interest; the neurologist reported some slight reflex inequality to which he attributed no importance. Repeated examinations of the sinuses were negative. A smear from the throat showed a few long chain streptococci, staphylococci and saprophytic flora. The tonsils were removed. The blood Wassermann was negative to all antigens. The hemoglobin and red cells were below normal; the white cells about normal. It is unfortunate that we are unable to report fully on the blood chemistry.

The present condition of the patient (Oct. 12, 1921), shows much improvement. He says he feels well, he has lost his excessive paleness, does not tire so easily with his work, has developed a good appetite, and his mental and physical condition are nearer normal. Vision: O.D., fingers four feet; O.S., 20/30. The field on the left eye has largely improved.

This individual is undoubtedly a carbon monoxid case, has a probable lowered resistance to this particular poisoning and will be again seriously affected with the onset of cold weather when his occupation requires him to be confined to the carbon monoxid laden atmosphere.

The case speaks volumes. It is well that the obscure cases presenting a category of symptoms similar to the above be viewed from angles other than disturbed endocrin function, idiopathic psychoses or neurasthenic debility. Carbon monoxid chronic poisoning is an entity of large and increasing distribution; a destructive medium which must be recognized if we are to successfully diagnose and properly treat our cases.

AN EXTENSIVE CASE OF VERRUCAE PLANTARES.

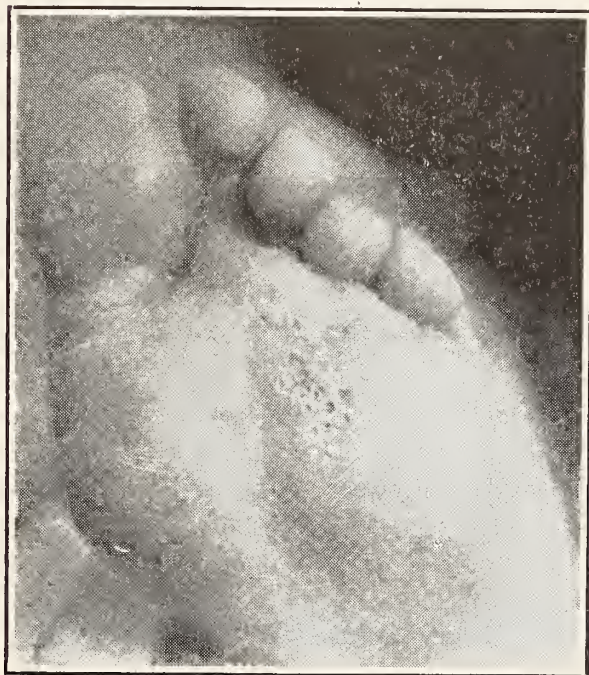
GEORGE P. LINGENFELTER, M.D., DENVER.

The following case is deemed worthy of report not because of the rarity of the disease, although it is frequently not recognized by the general practitioner, but because of the large number of lesions present.

A casual survey of the literature on verruca plantaris discloses the fact that very few of the reported cases present more than three lesions, and the vast majority show only one. Sutton (Jour. A. M. A., 1914, 62, p. 1320) has reported a case in which eleven were present, and in Hazen and Eichenlaub's (Jour. A. M. A., 1920, 74, p. 1311) series of sixteen cases, seen in private practice, the lesions were found to number from one to twenty. Sutton found carbon dioxid snow, fulguration, and the x-rays the most valuable therapeutic agents, in the order named. Hazen and Eichenlaub place greatest confidence in the x-ray. Recently I encountered a case in a single woman, white, bookkeeper, aged 26, referred to me by Dr. W. J. Robb of Denver. When the patient first consulted me, she was greatly agitated and frightened because a chiropodist had told her that she had "a cancer in the bottom of her foot".

At first glance, what appeared to be a large callus, just posterior to the metatarsophalangeal articulation, and extending almost entirely across the foot, was discovered. It was quite painful on pressure. Closer examination revealed the presence of a large number of discrete, sharply circumscribed lesions, varying in size from a pin-head to the top of an ordinary lead pencil, and covered with yellowish, translucent, epidermal "lids". When the coverings were pared away, cavities, with rather sloping sides, were disclosed, partially filled with a tough, whitish, moist material, like wet tow, and when this was curetted out, the tender, bleeding papillary tips were disclosed.

The lesions on the sole ranged from pin-head to small split-pea size, while on the ball of the great toe were two more tiny tumors, and on the ball of the third toe, another. In all, twenty-one lesions were present.



The photograph shows the foot after the removal of part of the epidermal lids.

Treatment consisted in the removal of the lids by paring, and the application of the "Abbott Mixture" of salicylic acid, eight percent, lactic acid, forty-eight percent, alcohol, fifteen percent, in a simple collodion base. This mixture was swabbed into the cavities, night and morning, for four days. The foot was then given a prolonged bath in hot water, and the offending growths shelled out.

Two months later, no evidence of recurrence was noted.

452 Metropolitan Building.

I Medici Stranferi Nell'Università Di Roma.

Roma, 1.—La direzione di questa Regia Università concede che nel prossimo anno i medici stranieri possano entrare nelle cliniche dipendenti dall'Università in qualità di assistenti.

DR. EDMUND ROGERS

Dr. Edmund James Armstrong Rogers was born at Grafton, Ontario, Canada, in 1852, on March 27th. Grafton is a farming village on the Grand Trunk, near the lake shore about sixty miles east of Toronto. His father was James G. Rogers, a farmer and the father of nine children older than Edmund. His ancestry on both the father's and mother's side was early New England stock. The Rogers ancestors settled in New Hampshire in colonial days, and produced James Rogers and Robert Rogers, both of the Rogers' Rangers, who became famous in the French and Indian War history. The family were loyalists at the time of the American revolution, as would be natural for British soldiers, and moved to Canada.

Edmund Rogers as a boy was supposed to have tuberculous tendencies, and after his secondary schooling at Trinity College School at Port Hope, Ontario, was sent to Manitoba on surveys for what is now the Canadian Pacific Railway. Here began his interest in outdoor life, particularly geography, which he instilled in his children. He came west to Colorado as a civil engineer about 1872, surveyed part of what is now the Highlands in North Denver, and traveled extensively over the state, riding horseback, mostly alone. He lost what little money he had inherited from his mother in ventures in sheep. He then returned to Canada, and graduated from the Medical Department of McGill University in 1881.

At McGill, he met and formed a life-long friendship with William Osler, then an instructor at McGill. In 1882 he returned to Denver to practice medicine, with his bride, formerly Miss Maria Georgina D. Burrell, of Brighton, another little town near his own birthplace. After a struggle to get established, during which he formed many of his later close associations, he became an assistant to Dr. F. J. Bancroft, then one of the best known figures in the state. In later years he had offices with Dr. J. C. Blickensderfer.

In the fifteen years following 1890 he earned and held a place as one of the leading surgeons of this region. His large frame, powerful and cheerful appearance and rapidly moving team of little horses were known all over the state. He served three terms on the State Board of Health (last 1897-1903), became Chief of Staff of St. Luke's Hospital and practically managed it for a time, and was Professor of Surgery at the Denver and Gross College of Medicine and later at the Medical School of the University of Colorado. He was President of the Colorado State Medical Society in 1893-4. He was staff surgeon on nearly all the Denver hospitals. He was a member of the American and the British Medical Associations, of the American Climatological Association, and of the State, County and other local medical associations. His membership in the British society was the result of a winter in Great Britain, spent immediately after his graduation at McGill during which he passed the examinations as a licentiate of the Royal College of Physicians and Surgeons at Edinburgh.

About ten years ago he began gradually to withdraw from his surgical and general work, and became a student of psychological medicine.

To this subject he devoted the whole energy of the last years of his life, and in it he was largely a pioneer. He read, wrote, practiced and experimented in this field tirelessly almost to the day of his death. From this work sprang friendships with William James and many other psychologists.

About three years ago he developed a tumor of the stomach for which he was operated upon. His strength was never as great after this operation. In the winter of 1920-1921 he broke down, spent the summer in California, and never afterwards really resumed his practice. Arteriosclerosis gradually increased, and he died, after a day of unconsciousness, at his home, 222 West Colfax, Denver, on July 3, 1922.

Dr. Rogers' home was a center for the British and Canadian colony in Denver, which has played a conspicuous part in the early life of Colorado. His closest non-professional friends were perhaps Judge Platt Rogers, John H. Gower and Dean H. Martyn Hart.

Professionally, Dr. Rogers was conservative in practice and inclined to pioneer intellectually. He was almost a pure idealist professionally. He detested the pecuniary side of his profession, and practically neglected it.

He leaves his widow and five adult children: James Grafton Rogers, a lawyer in Denver; Mary Susana Rogers, head of the Physical Culture Department of the State Normal School at Santa Barbara, Calif.; Frances M. Rogers, whose work is in the field of Domestic Science; Mrs. F. Thurlow Lacy of Denver, and Edmund B. Rogers, an employe of the Colorado National Bank. Dr. Frank E. Rogers of Denver is a nephew of both Dr. and Mrs. Rogers, and almost a member of their immediate family.

News Notes

Dr. Edmund J. A. Rogers, whose obituary appears elsewhere in this issue, was buried at Crown Hill, Denver, on July 6th. Drs. Henry Sewall, Charles A. Powers, Carroll E. Edson, Walter A. Jayne, F. H. McNaught, of Denver, Dr. R. D. Wilson, of Holly, and two of his patients, Messrs. R. W. Hanington and John J. Roche, of Denver, were pall-bearers. His nephew, Rev. Charles A. Burritt, of Pueblo, read the service.

Dr. Strickler's editorial in this issue describes what will probably prove a wise move. Most doctors are firmly convinced that osteopathy and chiropractic are fakes, and that any good results of treatment by those methods are psychic. If a commission of unbiassed scientists from different walks of life pronounces the doctrines false, it should have great weight with the public.

The new \$400,000 sanatorium of the Jewish Consumptives' Relief Society, Denver, was dedicated Sunday, July 9. This was a part of the procedure of the eighteenth annual convention of the society.

Dr. Harmon Tremaine of Denver has announced the removal of his office to 217-18 Majestic building.

Dr. George B. Packard, Sr., of Denver, accompanied by his wife and daughter, left on June 22 for California for a stay of some five or six weeks.

Dr. Fred H. Weber, formerly of Idaho Springs, has ordered his Colorado Medicine sent to Melrose, Massachusetts, care of the New England Sanitarium, where he expects to remain a year or two. Both he and Dr. Mary J. Weber expect to do post-graduate work at Harvard Medical.

Dr. J. D. Hinshaw, who has been a non-resident member of this society, is changing location from

Gibson, New Mexico, to Cañon City, Colorado, where he will engage in general practice.

Dr. F. E. Palmer of Sterling is expected to return from Vienna about August 1.

The annual convention of the Colorado Hospital Association will be held at the Albany Hotel, Denver, November 8 and 9.

The Secretary wishes to acknowledge receipt of the programs of the annual sessions of the following state societies: Medical Association of Montana, July 12 and 13, Great Falls; Utah State Medical Association, June 30, July 1, Salt Lake City; Wyoming State Medical Society, June 20, 21 and 22, Sheridan; the Medical Society of New Jersey, June 21, 22 and 23, Monmouth, Spring Lake, New Jersey.

Dr. C. G. McEachern, who left Denver some months ago to return to his old home in Greenville, Mississippi, has found that climate too trying in the summer time and is again to be found in Denver, where he will resume practice.

Dr. Philip Work of Pueblo has announced his withdrawal from Woodcroft Hospital and the opening of offices in the Thatcher building, practice limited to nervous and mental diseases.

The new officers of the National Tuberculosis Association are: President, Dr. Lawrason Brown; vice-presidents, Dr. Charles J. Hatfield and Dr. J. W. Pettit; secretary, Dr. George M. Kober; treasurer, Mr. Henry B. Platt. Dr. G. Walter Holden of Denver is one of the representative directors and Dr. Gerald B. Webb of Colorado Springs is one of the directors at large.

Dr. Robert S. Burket of Denver returned June 25, after having spent eight months at the Graduate School of Medicine, University of Pennsylvania, where he took special work in general surgery. He will resume practice, limiting to general surgery.

CORRESPONDENCE.

Headquarters Eighth Corps Area, Fort Sam Houston, Texas, June 14, 1922.

Dr. Frank B. Stephenson, Secretary Colorado State Medical Society, Metropolitan Building, Denver, Colorado.

Dear Doctor:

The Commanding General directs me to invite your attention to the enclosed copy of the very patriotic resolution passed by the Garfield County Medical Society, tendering their services, gratis, for physical examination of the C. M. T. C. recruits, and a letter of appreciation sent by the Commanding General of the Eighth Corps Area to that Society.

Mr. S. C. Kille, Director of the Fourteenth District, U. S. Veterans Bureau, sent out information in regard to the C. M. T. C. campaign requirements; as a result, more than three hundred civilian doctors in the Corps Area have, individually, tendered their services, gratis, to these headquarters in this connection. There have also been received tenders of gratuitous services from approximately four hundred medical reserve officers. Many resolutions have been passed by county and local institutions of a similar tender. The Garfield county resolution was the first formal county resolution to reach this office.

The attitude of the medical fraternity, as a whole, has been most patriotic and commendable, and is highly appreciated by these headquarters. Such publicity in your columns, as in your opinion is merited by the highly creditable action of the members of the medical profession, will also be highly appreciated.

Very respectfully,

THOMAS H. SLAVENS,
Colonel, General Staff, Chief of Staff.

June 8, 1922.

Dr. F. B. Stephenson, Editor Colorado Medicine, Denver, Colo.

Dear Doctor Stephenson:

Under separate cover, four pamphlets, prepared

and issued by the propaganda department, are being sent you. These are:

"Female Weakness Cures", 68 pp. Illustrated. Price 15c.

"Epilepsy 'Cures' and 'Treatments'", 38 pp. Illustrated. Price 15c.

"Obesity Cures", 62 pp. Illustrated. Price 15c.

"The Nostrum and the Public Health", 16 pp. Price 10c.

The first three pamphlets deal, as the name denotes, with specific products of the types described in the title. The fourth pamphlet does not deal with any specific nostrum, but discusses the general relation of the "patent medicine" evil to the public health. This pamphlet also contains an article on "Truth in Advertising Drug Products" and three short items on certain phases of the nostrum business.

Trusting you may think these pamphlets of sufficient interest to call to the attention of the readers of Colorado Medicine, I am,

Very sincerely yours,

ARTHUR J. CRAMP,

Director Propaganda Department, the Journal of the American Medical Association.

WANTED.

Middle aged general practitioner with fifteen years of large volume of major surgery, twenty years acquaintance in Colorado, wishes to form assistantship with view of buying later—Colorado or nearby states—towns of less than 5,000 not considered. Will do locum tenens for three to six months, anywhere, if remuneration is sufficient. Consult the editor.

For Sale—White fountain cuspidor splendid condition. Dr. G. P. Lingenfelter, 452 Metropolitan building, Denver.

Location Wanted—Graduate from Manhattan Eye, Ear, Nose and Throat Hospital, New York City, wants partnership association or location, Colorado; has had several years experience, two years postgraduate work. Best of references. O. T. Leftwich, M.D., 210 E. 64th St., New York City.

Medical Societies

COLORADO OPHTHALMOLOGICAL.

The regular meeting of the Colorado Ophthalmological Society was held on April 15, 1922, in the assembly hall of the Medical Society of the City and County of Denver, Dr. C. O. Eigler presiding.

Dr. Jackson announced that the clinical meeting of the American College of Surgeons would probably be held in Salt Lake City on September 11 and 12, that the Pacific Coast Ophthalmological Society would meet in Salt Lake City on September 14, 15 and 16, and that the members of the Colorado Ophthalmological Society would probably be invited to attend the first meeting referred to and would certainly be invited to attend the second.

F. R. Spencer and C. L. LaRue, Boulder, presented a man aged seventy-two years who had a variety of ocular disturbances, including pterygium, lenticular opacities, floaters in the vitreous, and old areas of chorioretinitis. Discussed by Edward Jackson.

W. T. Brinton, Denver, (by invitation) presented a man aged seventy-two whose right eye had a congenital coloboma of the iris and choroid. Recently a large detachment of the retina of this eye had developed. There was also a heterochromia iridis. Discussed by Edward Jackson, G. L. Strader and C. L. LaRue.

W. C. Finnoff, Denver, again presented, for the purpose of showing a later stage of development, the case shown at the previous meeting in which retinal edema had followed a blow upon the eye. A crescent of choroidal atrophy was now apparent.

W. H. Crisp, Denver, reported two cases of

abducens paralysis, one definitely symptomatic of lethargic encephalitis, the other of uncertain causation. The first case was in a young woman aged nineteen years, in whom the only pronounced symptoms were dilatation of the right pupil, and diplopia associated with convergence of the right eye. The vision and accommodation of the affected eye were undisturbed. In the second case, a moderate weakness of the abducens muscle had followed a short febrile disturbance of which the most marked local symptom had apparently been an erythema multiforme. Discussed by Edward Jackson, W. F. Matson and E. E. McKeown.

WM. H. CRISP,
Secretary.

PUEBLO CLINICAL AND PATHOLOGICAL.

A meeting of the **Pueblo Clinical and Pathological Society** was held in San Isabel grill room, Congress Hotel, May 17, 1922, where a seven o'clock dinner was served. The following program was carried out:

ESSENTIAL HEMATURIA, H. T. LOW.

The case which I am going to present to you tonight would ordinarily be classified under the head of Essential Hematuria. It is my object to attempt to bring to your notice the fact that such terminology as essential and idiopathic is being cast into disuse more and more, for such terms are merely a confession that the cause is unknown.

Case: Farmer, forty-five years old, married.

Family History: Negative except one sister died at the age of 24 with a tuberculous throat. Referred to my service because of a painless, symptomless, progressive hematuria of three years' duration.

Past History: Usual diseases of childhood. Chronic bronchitis for a period of several years in early life. At the age of 18, a horse fell on him, injuring back. Some pain of indefinite character in back for several years. Well up until ten years ago, at which time he developed rheumatism, which persisted for six years. During this time he had all of his upper teeth removed and some of the lower teeth. Was relieved. Says a blood Wassermann at this time was negative. Also had an accidental injury to eye, which caused the loss of sight in left eye. Three years ago, while lifting some heavy object, was seized with a severe cramping pain over the bladder region, and within a period of three days noticed that he was passing blood in his urine. This condition has persisted almost constantly until the present time, with only short intervals of remission. He complains of some general weakness and indefinite "rheumatic" pains in his shoulders.

Physical Examination: Fairly well nourished man.

Eyes: Left eye blind; right eye reacts to light and distance.

Station and gait, normal.

Patellar and other reflexes, normal.

Temperature, respiration and pulse, normal.

Teeth: Complete upper plate and a partial lower plate. Remaining teeth fairly good.

No enlarged cervical or other glands.

Lungs: Normal.

Heart: Normal with a slight distant sound at the apex.

Abdomen: Normal.

Kidneys: Neither kidney enlarged; no pain upon fist percussion.

Blood pressure: s. 110, d. 70.

Blood Wassermann and spinal fluid Wassermann, negative.

Blood: R. B. C., 5,000,000; W. B. C., 6,500; Hemoglobin, 85 percent (Sahli); clotting time, 2½ minutes.

Urine: Contained macroscopic blood; Sp. Gr., 1010; no albumin or sugar; no casts; no pus; stain for t.b. and other organisms, negative; culturally, negative.

Cystoscopic Examination:

Normal bladder. Bright blood spurting with each efflux from right orifice; normal urine from left. Catheterized both ureters to the pelvis. Right urine, extremely bloody; left, normal. Microscopic, chemical and cultural examination of urine all negative except for the presence of blood in that from the right side. Phenolsulphonethalein: 7 percent in 15 minutes from each side.

Radiogram reveals no enlargement; pyelogram on right side, normal with slight narrowing of right pelvis.

With all the methods used, no definite cause for the hematuria could be found, and a diagnosis was made of essential hematuria, having in mind the bare possibility of beginning malignancy. The severity and long duration of the hematuria was thought to have been sufficient cause for submitting the patient to operation. At operation a slightly enlarged, greatly congested kidney was removed.

Before giving the pathological diagnosis in this case, I wish to give a short resumé of the causes of renal hematuria. We may classify them under the following heads:

I. Systemic infections: Smallpox; scarlet fever; septicemia.

II. Grave's secondary anemia. Terminal pernicious anemia.

III. Hemophilia.

The above are usually found as bilateral cases.

IV. Acute nephritis.

V. Chronic nephritis, of glomerular type rather more often than tubular.

This condition is usually bilateral.

VI. Traumatic.

This condition may be either uni- or bilateral.

VII. Drug or chemical poisonings.

Usually bilateral.

VIII. Surgical causes: Tuberculosis; stone; tumor.

These three named in severe conditions are usually found unilaterally.

IX. Acute pyelitis; pyelonephritis; pyelonephrosis, or even hydronephrosis.

Then we get down to the cases which may be classified under the head of Essential Hematurias, and it is this type of cases which we must learn to recognize:

a. Unrecognized pyelitis, in which our urine examination does not reveal bacteria or pus. Hematuria possibly due to the result of the inflammation rather than an active infection.

b. Localized fibroid nephritis, near the apex of a pyramid or in the calyces.

c. Chronic papillitis.

d. Varicosities of the renal pelvis.

There is not very much known as to the cause of these so-called types of essential hematuria; however, as progress is made in the pathological study of kidneys removed for this condition, we are learning to do away with the term "essential", as it is pointed out by Quinby in a series of cases, some pathology can nearly always be found either in the renal pelvis or papillae or calyces.

Pathological Diagnosis:

Kidney reveals tubules and glomeruli in their normal state. At the apex of the pyramid there is considerable congestion of the blood vessels with occasional extravasation of blood into the tubules. In the portions near the calyces, there are deposits in the collecting tubules of what appear to be urates, and in the neighborhood, there are foreign body giant cells. The chief pathological condition is in the pelvis in which there is a marked round cell infiltration of the layer under the epithelium with congestion of the vessels.

Diagnosis:

Chronic pyelitis and papillitis.*

In dealing with these cases of hematuria, I wish to mention a few of my conclusions:

*Note: At no time during any of the urine examinations were we able to isolate any organisms or find anything more than an occasional leucocyte.

1. Hematuria is more often of a serious nature than otherwise; treatment of any hematuria is not only ill advised, but often disastrous, until a definite diagnosis is made, or, at least, the probability of stone, tumor or tuberculosis is ruled out.

2. Definite, dependable diagnosis can only be made after a careful clinical history, together with the use of cystoscope, ureteral catheter and x-ray.

3. After we study these cases more fully, less often will we use the terms "essential" and "idiopathic".

4. Pelvic lavage should be carried out over a longer period of time with perhaps stronger agents than we have been in the habit of using, before we resort to surgery. Especially is this true in the type of cases which have previously been classified under the head of "essential hematurias".

Discussion:

F. M. Heller: Thinks it a very big mistake to give drugs for this condition and a more serious mistake to pass it over lightly. He spoke of a case of a very young child, in which this condition was present, and which cleared up with the removal of the tonsils. He mentioned also a case in which following operation the diagnosis cleared up, the pathology being a malignant growth of one kidney. He states that in some instances pathological examination showed salt deposits along the tubules of the kidney, the hematuria apparently being produced by mechanical irritation.

J. H. Woodbridge: In children there are five things to think about as causative factors: trauma, scurvy, purpura, sarcoma, acute glomerular nephritis.

W. F. Singer: Spoke of tissue dyscrasias as a cause for some of these cases, as a result of improper diet. He mentioned a case in which retinal hemorrhage cleared up by use of proper diet. Mentioned condition of epistaxis which has been of long standing. It may take a number of months for the dyscrasia to clear up. Suggested, Dr. Low's case one of improper diet or focal infection. Asked Dr. Low, after removal of the diseased kidney how frequently the other one becomes diseased.

J. C. Epler: The great majority of cases are puzzling as to etiology and in many cases as to diagnosis. It takes a large series of cases with very careful studying to get us anywhere. He states he would operate on such a case as Dr. Low's even though causative factor was not determined, providing it was chronic. Speaks of a case in which improvement was very marked following operation. A postoperative diagnosis of hypernephroma was made.

C. N. Caldwell: My experience is that in acute cases we find them, usually, bilateral, while the chronic are unilateral. In septic emboli, of course, we have a unilateral condition.

H. T. Low (in closing): We all get cases in which no definite etiological factor is found and in occasional cases even following operation no causative factor is determined. Believes that because one kidney is removed there is not any reason to think the other one would become diseased.

MOLAR PREGNANCY, WILBUR LUCAS.

Dr. Lucas reported two cases of hydatidiform mole, one in a primipara, the other in a woman who had borne two normal children and has had one normal birth since. The case of the multipara was without much interest, as the mole was simply passed, like an ordinary abortion, and never caused any trouble before or after it was passed.

The primipara was a young Siberian woman, age 20, who first applied for treatment on account of pain and moderate bleeding. Her history indicated that she was pregnant two months; her physical appearance indicated she was five months pregnant. She had been having small intermittent hemorrhages for one month and these were

becoming larger and more troublesome. Her systolic blood pressure was 165, diastolic 100. Urine showed two and a half percent albumin and numerous casts. She had been suffering from a great deal of nausea and vomiting. These findings are rather common in molar pregnancies; infection is also a great danger in these cases. There was no dilatation of the cervix at this time, there was no ballottement, no fetal heart tones, and no fetal parts could be made out. This patient had been married one year. She had always been regular in her periods. Her Wassermann was negative. She has never had any kind of sickness.

She was under observation for ten days and was repeatedly gone over; two vaginal examinations were made; she was kept on a milk diet; the albumin was reduced to a trace, a few casts remained and the blood pressure remained the same. On the tenth day she was admitted to the hospital in labor, and was delivered manually of a vesicular mole which weighed three pounds. The os was large enough to admit the hand and the manipulations were as gentle as one would wish. The womb was gently packed with sterile gauze saturated with 3½% Tr. iodine with the excess squeezed out; this gauze was removed in ten minutes. The loss of blood was small.

When she was admitted her temperature was 101.4°, pulse 120; twelve hours later it was 97.8°, pulse 92, and remained normal until thirty-six hours later when it suddenly jumped to 101°, pulse 124. She now complained of severe abdominal pain. She had a very stormy time of it for the next four days, during which time the vaginal discharge was odorless, and normal in quantity and appearance. Blood showed Hb. 34%; Reds 2,430,000; Whites, 7,800; Poly's. 82%; SP. 110; DP. 60. She was being treated for sepsis, and in addition to the ordinary procedure I gave her ten cc. anti-streptococcic serum; the reaction from this was very violent indeed, but as soon as she recovered from the serum sickness, she grew rapidly better. Twenty-four hours later the blood whites were 12,400, and neutrophils were 86%. She was able to leave the hospital eight days later. She was very anemic and weak but desired to return to her home. She was cautioned to report frequently for observation and cautioned, in regard to the danger of cancer following such cases, to report any irregular flowing or excessive flowing or pain; that these dangers were of long duration—but I have only seen her once, about two weeks after she left the hospital. She was still weak and anemic but was doing some of her work. I understand that she and her husband are now separated and that perhaps accounts for her not reporting for observation.

Diagnosis.

First, to establish the diagnosis of pregnancy by presence of the positive signs, i. e., the changes in shape and size and consistency of the womb obtainable in the first few months.

Second, the rapid increase in size of the organ, out of proportion to the stage of gestation. The uterus is too large for the first two months, later it may be too small for the stage of gestation. Distressing nausea and vomiting may occur as a result of the rapid growth of the uterus and distension of the abdomen.

Third, discharge of blood and bloody serum at intervals or more or less constantly; this discharge is not profuse and does not as a rule appear before the third month.

Fourth, vesicles or cysts may escape in the vaginal discharges. They are not often seen.

Fifth, the uterus loses its elasticity and is doughy in consistency.

Sixth, there are no fetal heart tones, no ballottement, no fetal parts nor fetal movements; although the uterus may reach above the navel.

The presumptive diagnosis is based on the rapid enlargement of the uterus toward the end of the third month; the intermittent discharge of blood

and serum and the absence of any positive signs of the presence of a fetus in the uterine cavity. The diagnosis may be made by direct digital exploration of the uterine cavity and the detection of cysts.

There is a maternal mortality of 20%, due to: immediate causes—hemorrhage, sepsis, and perforation of the uterus. In treatment one must remember that the syncytial cells of the chorionic villi perforate the muscular wall of the uterus, and when the mole is expelled or removed rupture of the uterus and fatal hemorrhage may result. Removal should therefore be done manually to lessen this danger. The remote cause of mortality, chorionepithelioma, is preceded by vesicular mole in about fifty percent of reported cases. Therefore follow these cases by microscopic examinations of curettings at intervals. If necessary on account of metrorrhagia, these patients should be kept under observation for several months, on account of danger of chorionepithelioma. Should this occur immediate hysterectomy is indicated.

Treatment:

Expectant, until evidence of a living fetus fails to appear at the usual period; or until hemorrhage becomes dangerous. Then immediate removal under strictly aseptic precautions as this is a condition of low resistance to infection. I believe packing the uterus, following careful manual removal of the mole, with gauze saturated with 3½% Tr. iodine with the excess squeezed out, as advised by Polak, to be a good thing. He states that the iodine is not only a good antiseptic but that it also destroys the chorionic villi and small cysts if any remain.

Discussion:

W. F. Singer: Reported a case in which he used streptococcus serum with brilliant results. Does not believe in instrumentation but uses the fingers. Desires to ask if any of these cases developed eclampsia.

Wilbur Lucas (in closing): Thinks eclampsia never occurs. Like Dr. Singer, he does not believe in the use of instruments.

H. A. Lamoune discussed a case of **septic sore throat** in which for twenty years there had been no other attacks. He asked if in such cases an immunity would be acquired.

Discussion:

J. J. Pattee: States that such cases very frequently die in a short time. Does not believe in the immunity idea.

J. H. Woodbridge: Thinks an immunity of this kind very transient.

F. E. Wallace: Said the case was very lucky, in that further attacks had not occurred, and that no immunity under such conditions was possible.

W. F. Singer: Felt that no immunity could occur. Patient might have one attack and never another, as in appendicitis.

F. M. Heller: Exhibited a clinical case of **aortic aneurysm**. No doubt of its cause being specific. He showed x-ray pictures which beautifully outlined the enormous aneurysm.

F. E. WALLACE, Recorder.

NEW AND NONOFFICIAL REMEDIES.

During June the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Borcherdt Malt Extract Co.: Borcherdt's Malt Cod Liver Oil and Phosphorus.

Intra Products Co.: Ven Sterile Solution Procaine 0.5 percent; Ven Sterile Solution Procaine 2.0 percent; Ven Sterile Solution Procaine 5.0 percent.

Lederle Antitoxin Laboratories: Pituitary Ex-

tract-Lederle (obstetrical); Pituitary Extract-Lederle (surgical).

Parke, Davis & Co.: Diphtheria Antitoxin piston syringe containers; Antitetanic Serum piston syringe containers; Antigonococccic Serum 12 Cc. bulbs; Antistreptococccic Serum 20 Cc. piston syringe containers; Antistreptococccic Serum 50 Cc. piston syringe containers; Anti-Anthrax Serum; Antimeningococccic Serum; Diphtheria Toxin-Antitoxin Mixture; Tuberculin B. F. (Bovine); Gonococcus Vaccine 1 Cc. bulbs; Gonococcus Vaccine 1 Cc. syringe; Gonococcus Vaccine 5 Cc. bulb; Gonococcus Vaccine 20 Cc. bulb; Erysipelas and Prodigiosus Toxins (Coley) 1 Cc. bulb; Erysipelas and Prodigiosus Toxins (Coley) 15 Cc. bulb.

Notes From the Library

BOOK REVIEWS.

Epidemiology and Public Health, in three volumes, by Victor C. Vaughan, M.D., LL.D., assisted by H. F. Vaughan and George T. Palmer. Vol. 1, Respiratory Infection. C. V. Mosby, 1922. For sale by Clement R. Troth, Majestic Building, Denver.

Though this book has been on the market for some months it is probably known to few of the medical profession of Colorado. If a few words here can remedy this neglect a great boon will have been conferred on those who will be guided by them. Epidemiology as a science of observation is as old as medicine, but as a science of experiment it has just entered the cradle of knowledge. The recent epidemiological researches of Taylor and of Flexner and Amos of the Rockefeller Institute are epoch making in design. The author of the present work is rounding out a long career of thought saturated from the beginning with conceptions of the nature of disease; he has himself played a very notable part in the study of pathogenesis and in the formulation of definite rules for our defense and counter attacks against the enemy. We must go rather far back in the study of medicine to find a parallel to the simple, clear diction in which Vaughan sets forth the meaning of some of the more complex phases of modern medical thought. The language is almost colloquial in its familiarity and the reading is easy. The volume under consideration treats of infections, especially from the standpoint of immunology, and it is of fundamental importance at present because of its detailed study of respiratory diseases which have in a peculiar way eluded the strangle hold of science.

With characteristic imagination Vaughan entitles his first working chapter "Albuminal Diseases". His thesis is that practically all infection morbidity is an expression of protein reactions; intercourse between the protein of the germ on the one hand and that of the living cell on the other. Vaughan himself is the author of the simplest and one of the most productive theories of immunity extant. His discussions are luminous with the wisdom of verified knowledge, but admirably free from partisan bias.

The present is the most favored time of all history for the elaboration of a work on epidemiology. The great war, with its incomparable medical studies, and the recent pandemic of influenza, have offered an unique assemblage of facts and circumstances. It is to be hoped that certain subjects treated in this book will be elaborated in the succeeding volumes. Thus, on page 453, in discussion of the common belief that an attack of measles predisposes to the development of a latent pulmonary tuberculosis, no reference is made to an important contribution emanating from one of the military hospitals in the late war. It was found, namely, that during a fatal epidemic of measles postmortem examination showed the lungs to be studded with minute abscesses which had macroscopically close resemblance to miliary

tubercles. The obvious suspicion is that similar appearances may in the past have been the false basis for the traditional belief in the sequential relation between measles and tuberculosis.

Readers of the treatise noted here will not fail to study the two forthcoming volumes on infections other than respiratory and on public health administration.

H. S.

Diseases of the Eye; a handbook of ophthalmic practice for students and practitioners, by George E. de Schweinitz, M.D., LL.D. (Univ. of Pa.), Professor of Ophthalmology in the University of Pennsylvania, etc. Ninth edition, reset, with 415 illustrations and 7 colored plates. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$10.00 net.

What attributes of a medical text book make it popular? Often it will be found that the author is well known as a writer, clinician, teacher and consultant. His manner of presenting the subject in book form is clear, well arranged and inclusive. The illustrations must be at least fairly good. The volume is published by a well known publishing company, whose advertising is calculated to bring the work to the attention of the profession, especially that part of it engaged in teaching the general or special line of medical work. Once these qualities have established the reputation of a first edition, subsequent editions, with fair revision and judicious advertising, will sell themselves.

De Schweinitz's "Diseases of the Eye", which now appears in a ninth edition, has possessed all these qualifications in a marked degree. It made its first bow to the medical public in 1892. It has been revised eight times, and entirely reset three times. In the present edition the list of subjects appearing for the first time occupies two-thirds of a printed page, and includes such important topics as Jennings' Self-Recording Test for Color Blindness; Ophthalmoscopy with Red-Free Light; Poisonous Gas Conjunctivitis; Localization and Organization of the Cortical Centers of Vision, according to Holmes and Lister; Trephining the Sclera for Detachment of the Retina, and Mosher's Operation for Dacryocystitis.

Much of the subject matter has been rearranged. The volume includes, as was the case in former editions, a description of Corneo-Scleral Trephining by Lt.-Col. Elliot; an account by William M. Sweet of his method of localizing foreign bodies in the eyeball by means of the x-ray; a section by Edward Jackson on Skiascopy or the Shadow Test, and suggestions by Alexander Duane in the Chapter on the Movements of the Eyeballs and Their Anomalies.

A noticeable feature of the new edition is the use of thinner paper of excellent quality; so that with an increase of eighty in the number of pages the volume is an eighth of an inch thinner than in the eighth edition.

W. H. C.

Practical Infant Feeding. By Lewis Webb Hill, M.D., Junior Assistant Physician to the Children's Hospital, Boston; Assistant in Pediatrics, Harvard Medical School. Octavo of 483 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, \$5.00 net.

The title is well chosen. For the general practitioner any treatise dealing with the art of infant feeding must be practical even to the extent of being dogmatic. No other subject in medicine has a literature so full of nebulous or even contradictory theories in spite of the great progress made in the last two decades in solving some of the problems of the infant's metabolism.

The pediatricist has been obliged to digest and assimilate the various theories and methods propounded and eventually evolve his own method of infant feeding. The general practitioner finds it difficult if not impossible to read any two text

books on infant feeding and then try to follow both of them. He must choose a text book method and follow it religiously. Such a book should be arbitrary, dogmatic, but should equip the doctor with practical reasons for prescribing a particular formula to a particular infant. Dr. Hill has succeeded in this aim better than any other exponent of the percentage method of feeding. In the feeding of infants over nine months of age the author takes a sane mid-ground between the ultraconservative Boston school and the "liberal" western pediatricists. The Chapter on Diarrhoeal Diseases is exceptionally valuable. Dr. William W. Howell has contributed an excellent chapter on the physiology, care and feeding of premature infants.

R. P. F.

Submucous Resection of the Nasal Septum. By W. Meddaugh Dunning, M.D., Consulting Otolologist, Fordham Hospital, N. Y. C.; Consulting Otolologist, Manhattan State Hospital, N. Y.; Consulting Laryngologist, Ossining City Hospital, Ossining, N. Y.; Consulting Laryngologist, the Alexander Linn Hospital, Sussex, N. J.; Assistant Surgeon, Manhattan Eye and Ear Hospital, New York; Surgeon, Bronx Eye and Ear Infirmary, N. Y. Surgery Publishing Company, New York: Price, \$1.50 post-paid.

This little book of some one hundred pages, profusely illustrated, can be read and digested in the course of one evening's reading. As the title indicates it is of interest particularly to the rhinologist. However, the discussion of the anatomy and functions of the nose as well as the description of various types of deviations indicating cases in which the operation of submucous resection is necessary can scarcely fail to be of interest to any member of our profession.

The chapters on surgical procedure and special surgical procedure deal in detail with the various forms of submucous resection beginning with the early crushing procedure followed by the outgrowth of the work of Killian, Ballenger and Freer and describing the technic perfected during the past generation by improvement in instruments, modification of incision, care in selection of cases, etc. Finally he portrays his methods by use of certain special instruments and a rather unusual initial incision in a very intelligible manner.

His diagrammatic drawings of the various steps in the operation as well as those illustrating the handling of especially difficult deviations appeal to me as being particularly worth while studying.

I chanced to be in New York City while Dr. Dunning was formulating the greater portion of this book. I had the opportunity of learning to know him well through our association at the Manhattan Ear, Nose and Throat Hospital. Consequently, I can appreciate the time and labor necessary in perfecting his technic and arranging the data in such a terse manner as presented in this publication.

I wish to commend it to all practitioners of medicine, but especially is it worthy of study by otolaryngologists, who fully realize the protean barriers necessary to surmount in handling certain types of septal deviations.

H. D.

The Thyroid Gland. Clinics of George W. Crile, M.D., and Associates at the Cleveland Clinic, Ohio. Octavo of 228 pages, with 106 illustrations. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, \$5.00 net.

This volume is the beginning of a series of clinical and theoretical work from Dr. Crile and his associates, which is one of the most progressive scientific medical forces in this country.

The editor has well said: "This may be a very short-lived publication, it is not a text book or a monograph, it only represents the viewpoint of the clinic today." But aside from that it is rare,

choice, medical literature fully abreast of the times if not a little in advance here and there.

This publication is set apart for the discussion of the thyroid gland with all its connecting links with other tissue and its various influences upon the vital organs.

Crile, in his section dealing with the function of the thyroid, illustrates how the brain is the driving master of the vital organs of the body and how this driving master is affected by the influence of secretions of the thyroid. How the brain is depressed in the case of myxedema or too little secretion of the thyroid; and how it is affected in exophthalmic goiter, or too much secretion. With excessive thyroid activity life is exquisitely tense, dramatic and excessively responsive to every stimulus.

In his discussion of the role of the adrenals in exophthalmic goitre he points out very clearly that the thyroid sensitizes the tissues all over the body to adrenalin and in turn the adrenalin activates the functions of all the organs, i.e., stimulates the heart, raises blood pressure, raises the conductivity of the brain, throws blood to the surface, causes leucocytosis, dilates pupils, causes more heat in the body, greater muscular and mental action, etc. One stimulates and activates the other.

The uses and abuses of iodine or thyroid products; hyperthyroidism and pregnancy; increased sensitization due to hyperthyroidism with the vivid manifestations; the electrochemical mechanism of the body; conductivity and oxidation; hyperthyroidism, so-called, an acidosis of the intracellular tissue; are among other topics of profound interest.

This volume should be of great assistance in coordinating the efforts of the internist and surgeon in the treatment of diseases of the thyroid.

L. J. W.

Papers From the Mayo Foundation for Medical Education and Research and the Graduate School of Medicine of the University of Minnesota, covering the period of 1915-1920. Octavo volume of 695 pages with 203 illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$10.00 net.

This volume is composed largely of a series of papers based upon the experimental work performed at the Mayo Foundation. Many articles are a synopsis of theses prepared by students at the Foundation.

The articles on diseases of the urogenital organs and of the alimentary tract are well worth reading by those interested in those branches of medicine.

No doubt the continuation of this experimental work will bear fruit in such a manner that many of the conclusions formed can be directly applied in clinical practice.

F. H. C.

Syphilitic Disease of Bronchi and Lungs.

(Reprint from "Abstracts From Recent Medical and Public Health Papers, Issued by the Division of Venereal Diseases, U. S. Public Health Service.")

Balzer describes some typical cases of a very fatiguing cough that had been recurring every night for several months, but finally subsided under the arsenical treatment, and this time permanently. Inherited syphilitic disease of the lung may develop early, or not until maturity; cases have been published at the ages of 21, 28, 34 and even 41. The cough and dyspnea are usually nocturnal, and there may be hemoptysis, with night sweats, and bronchiectasis develops in time. Syphilis should be suspected in all cases of broncho-pneumonia tending to chronicity and sclerosis after measles, influenza and whooping cough. The lesions predominate in the central or lower portions of the lung, and are usually unilateral, while the general health keeps fairly good. In adults, the lungs are a comparatively rare location for syphilitic lesions, although the spirochetes may settle in a tuberculous lesion. The syphilis in this case tends to organization and sclerosis of the focus, while the tuberculosis aggra-

vates the spirochetal lesions by the tendency to destruction of tissue. The patient's fate may depend upon the insight of his physician, detecting the syphilis masked by other infection. Specific treatment may then save him, even when cachexia is installed. Maurice says that treatment of pulmonary syphilitic lesions is liable to be more successful than with visceral lesions. The arsenicals are particularly effectual in syphilitic bronchitis simulating pulmonary tuberculosis. (F. Balzer, *Paris Medical*, Paris, January 21, 1922; *Journal A. M. A.*, March 18, 1922).

Board to Administer National Fellowships in Medicine.

(News Item From the National Research Council.)

The National Research Council has appointed a special board of eminent medical men to administer the National Fellowships in Medicine which the Research Council is able to offer through special gifts to it by the Rockefeller Foundation and General Education Board, amounting to \$100,000 a year for five years.

The members of the board are: Victor C. Vaughan, formerly dean, Medical School, University of Michigan, now chairman, division of medical sciences, National Research Council, ex-officio chairman; David L. Edsall, professor of medicine and dean of the Medical School, Harvard University; Joseph Erlanger, professor of physiology, School of Medicine, Washington University, St. Louis; G. Carl Huber, professor of anatomy and director of anatomic laboratories, University of Michigan; E. O. Jordan, professor of bacteriology, University of Chicago; Dean Lewis, professor of surgery, Rush Medical School, Chicago; W. G. MacCallum, professor of pathology and bacteriology, Johns Hopkins University; Lafayette Mendel, professor of physiological chemistry, Yale University, and W. W. Palmer, professor of medicine, Columbia University, School of Medicine.

The fellowships are open only to students who have already obtained the degree of M.D. or Ph.D. or have equivalent qualifications. Fellows will be appointed for one year with the privilege of applying for reappointment. Applications or requests for special information should be made to the division of medical sciences, National Research Council, 1701 Massachusetts Avenue, Washington, D. C.

Saving New York's Babies.

The death rate of children under one year of age for the entire state of New York in 1921 was only seventy-five for every one thousand children born alive, according to a report given out today by the State Department of Health. This is the lowest infant mortality record ever reached in the state and represents a decline of fifty percent in the last seventeen years, when compared with the rate of 151 in 1904. Even in the last eight years the infant mortality rate of the state outside of New York City declined from 120 in 1913 to 81 in 1921, or thirty-three percent. This means that if the rate of seventeen years ago had prevailed last year over 36,000 children under one year of age would have died in this state instead of only 18,013, the actual total of such deaths in 1921. Likewise in the state outside of New York City it means that over 12,500 babies would have died in 1921 instead of 8,464 if the rate of only eight years ago had prevailed last year. In making public these statistics, Dr. Hermann M. Biggs, state commissioner of health, points out that last year's saving of lives of babies under one year alone approaches the 5,000 lives which the commissioner promised could be saved each year through the modern system of public health administration which the state of New York adopted eight years ago. "The infant mortality rate responds more quickly to efficient public health work than any other index of sanitary conditions," said Dr. Biggs, "and this gratifying decrease in the baby death rate may properly be taken as clear evidence that New York State is getting value received for the money it has put into public health work in recent years."—N. Y. State Dept. of Health News Service.

Colorado Medicine

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Editorial Comment

SCIENTIFIC PROGRAM.

Fifty-second Annual Session of the Colorado State Medical Society, Colorado Springs, Colorado, October 3-4-5, 1922.

(Attention is called to the arrangement of the program by which the afternoons of the first and third days of the session are left free. This desirable plan will necessitate a strict observance of the time-limit on both papers and discussions.

Headquarters will be at the Antlers Hotel and all scientific meetings of the general assembly and of the House of Delegates will occur there.

The House of Delegates will meet Monday night, October 2, at 8 p. m., preceding the general meetings).

OCTOBER 3.

First Meeting, 8:30 a. m. to 1 p. m.

1. Congenital Hypertrophic Pyloric Stenosis.....Dr. George B. Packard, Jr., Denver; Dr. John W. Ames, Denver
2. Rickets.....Dr. E. L. Timmons, Colorado Springs.
3. A Study of Congenital Malaria, With Report of a Case in Colorado.....Dr. Roy P. Forbes, Denver
4. Nephritis in Children.....Dr. John L. Schwer, Pueblo
5. Report of Three Years of Public Health Work of the Denver Venereal Disease Clinic, Women's Division.. Dr. Minnie C. T. Love, Denver
6. The Diagnosis of Surgical Kidney Lesions....Dr. George M. Myers, Pueblo
7. Suprapubic Prostatectomy in Two Stages: the Proper Application and the Fallacy Thereof.....Dr. Wm. M. Spitzer, Denver
8. One Hundred Consecutive Cases of Prostatectomy With a Mortality of One Percent Dr. Oliver Lyons, Denver
9. The Treatment of Malignancies by Radiation..Dr. W. W. Wasson, Denver

OCTOBER 4.

Second Meeting, 8:30 a. m. to 1 p. m.

1. A Report of Six Cases of Acute Perforation in Chronic Ulcers of the Duodenum Dr. W. A. Kickland, Fort Collins
2. Fractures Involving Joints—Question of Movement Dr. Geo. W. Miel, Denver
3. Difficulties in the Accurate Diagnosis of Intra-Abdominal Lesions, With Report of Post Operative Cases.... Dr. Lewis I. Miller, Denver
4. Posture and Abdominal Pain Simulating Symptoms Usually Associated With Chronic Visceral Pathology.....Dr. C. E. Tennant, Denver
5. A Clinical Classification of Goiter.....Dr. J. Arthur Buchanan, Pueblo
6. A Method for Increasing the Simplicity and Safety of Gastrectomy, Gastro - Enterostomy, and Other Similar Operations Dr. Leonard Freeman, Denver
7. The Importance of Headaches in General Practice, Originating from Eye, Ear, Nose and Throat.....Dr. Frank R. Spencer, Boulder
8. First Care of Eye Accidents by the General Physician Dr. Wm. H. Crisp, Denver
9. Progress in Cancer Education.....Dr. Chas. A. Powers, Denver

Third Meeting, 2:30 p. m. to 4:30 p. m.

1. President's Address.....Dr. J. Crum Epler, Pueblo
2. Address on Medicine.....Dr. J. N. Hall, Denver
3. The Use of X-rays in the Treatment of Deep Seated Lesions.....Dr. Benj. H. Orndoff, Chicago, Guest of Honor.
4. Remarks on the Pending Antivivisection Bill...Dr. Henry Sewall, Denver

OCTOBER 5.

Fourth Meeting, 8:30 a. m. to 1 p. m.

1. Dementia Precox and the General Practitioner Dr. Leo V. Tepley, Denver
2. Observations on Certain Experiments

With Inhalations and Injections of Various Substances Into the Respiratory Tract
.....Dr. Saling Simon, Denver

3. Observations on Complete Immobilization Treatment in Pulmonary Tuberculosis, With Reports of Cases....
.....Dr. Samuel Swezey, Denver
4. Treatment of Tuberculosis of the Skin
.....Dr. A. J. Markley, Denver
5. Diphtheroid Infection of Nose and Lungs
.....Dr. Clinton E. Harris, Woodman
6. Pathology and Clinical Medicine.....
.....Dr. A. G. Ellis, Colorado Springs
7. Use of the Electrocardiograph in Diagnosis...Dr. C. T. Burnett, Denver
8. The Mortality Among the Jews of Denver. A Preliminary Study in Group Vital Statistics.....
.....Dr. C. D. Spivak, Denver

ENTERTAINMENT PLANS FOR ANNUAL MEETING.

The next annual session of the Colorado State Medical Society will be held in Colorado Springs October 3, 4 and 5. The local committee on arrangements have already started to make preparations for the entertainment of their guests. Among other things it has been decided to devote Monday, October 2nd, to clinics to be given at the various hospitals and sanatoria in and about the city. These clinics will cover as broad a range of subjects as possible in order to interest everyone, and will be so arranged that any special work desired can be seen without overlapping or conflicting with any other clinic, and they will be run on a strict schedule. As will be seen, this is the day in advance of the general meetings.

The roads are splendid. Plan to motor to Colorado Springs on Sunday and devote Monday to clinics and Monday night to discussion of same.

The scientific program will start Tuesday morning at nine o'clock and will be held at the Antlers Hotel, and this year the program will end at one o'clock each day, so we shall have ample time for work and play; except Wednesday afternoon, when several special addresses are provided.

A Colorado State Medical Golf Tournament will also be an item of the schedule of work of the Annual Meeting. This early notice of the event is made at this time to enable all devotees of the Scotch game to make arrangements in advance to demonstrate their prowess in Colo-

rado Springs and to bring their clubs and togs. A silver trophy is offered for the winner.

Remember the dates!

Plan to be present!

Bring your golf clubs!

Come early for the clinics!

W. V. MULLIN, Chairman,
JOHN B. HARTWELL,
S. W. SCHAEFER,
E. L. TIMMONS,
M. O. SHIVERS,
Committee on Arrangements

A CALL TO ARMS!

Special Meetings to Organize Defense Against Antivivisectionists.

The executive officers of the Colorado State Medical Society, realizing the extreme necessity of putting on an organized campaign to inform the public about the iniquities contained in the antivivisection bill and the serious blow its passage would deal to medical science, to the new medical school and to public health, have issued an appeal to all constituent societies to hold special meetings (inviting the public) to effect working organizations which, constituting branches of the Colorado Association for the Protection of Public Health, will arrange campaign meetings and public addresses and distribute literature on the subject.

A complete program for the campaign is being worked out and will be furnished from Denver headquarters as soon as the organizations are effected.

Constituent societies are urged to enter into this movement with enthusiasm and to have something real good to report at the annual meeting. The delegates are going to be asked to make a full report at that meeting, when it will develop whether the physicians of Colorado are sitting by as a lot of mollicoddles, allowing a cult made up of women sentimentalists, chiropractors and patent medicine representatives to put something over on them, or have enough spirit to fight, and fight actively, for their rights and the good of humanity.

This is urgent!

Get ready for the fight!

VIVISECTION AND FAITH.

Open-minded persons who have been opposed to all vivisection because they have been ill informed or misinformed, can easily be convinced that animal experimentation has been of incalculable benefit to mankind and of little less benefit to animals themselves. There is ample evidence to convince any unprejudiced person that this is true, and that in modern laboratories of animal experimentation there is no cruelty and very little suffering. Persons who have simply been misled by false information are convinced by such evidence that they have been mistaken.

There are other opponents of vivisection who refuse to be convinced by any evidence. They

deny the existence of disease and therefore condemn the search for any means to cure it. There can, of course, be no defense of the "torture" of animals for the discovery of cures for diseases which do not exist, and these objectors seem to derive comfort from denying that disease or injury does exist outside of the crude imaginings of unregenerate minds.

To be able to escape the ills of life by thus denying them is a felicity of which no one who possesses it should be deprived, but there are very few persons of fine enough spiritual fiber to possess it in a very high degree. If evil be illusory, it is to most of us nevertheless an illusion that has all the force of reality. We are too poorly equipped with mental subtlety to be unperturbed by an illusion of diphtheria that illusively strangles our child into the hands of an illusive undertaker and dooms it to an illusive grave. We are not perverse enough, because of our lack of faith, to desire to deprive of its beneficent potency the faith of those who have it, but since we freely concede to those who can accomplish it the right to escape from their afflictions by an act of faith, we demand that they as freely concede to us—whose faith is far less potent—the right to escape from our afflictions by the experimental use of rats and guinea pigs.

Even where the rat or guinea pig seems to suffer somewhat—which is not in more than two or three percent of the number used—if we live in a world of unreality as the strong of faith say we do, a world in which all pain is simply an error or illusion of the carnal mind, the rat's pain is just as illusory as our own, and therefore constitutes no logical or moral obstacle to an experiment that relieves the much more distressing unrealities of human sufferers.—Emerson Page in *Delta County Tribune*, July 21, 1922.

TURLEY—AND FIVE-CENT CAR FARES.

Are we to treat the insane as criminals? Or shall we detain them in hospitals for the mentally diseased? Shall a victim of paretic dementia who kills another person, and who, although mentally conscious of what he was doing, is morally unconscious that he has committed a crime, be "hanged by the neck until he is dead"?

To the last question the law, in general principle, answers emphatically no. To determine whether a man is or is not insane the law of Colorado, a few years ago, wisely resolved to rely upon the opinion of medical experts in mental disease. Some half dozen such experts were recently called upon to advise the court whether Turley, who had committed homicide of a manifestly irrational character, was mentally diseased; and these experts answered with striking unanimity in the affirmative.

Physical and laboratory tests aplenty were brought forward to prove, not only that Turley was insane, but that he was afflicted with a general systemic disease which was clearly the basis of his mental symptoms. The unpreju-

diced character of these expert opinions could not be called into question, for the prisoner was a poor man, and there was here no possible suggestion of medical judgment, in a doubtful case, being colored or influenced by the wealth of the accused person. Yet, when the next step was obviously to send the slayer to the insane asylum at Pueblo, the chief executive of the capital of Colorado took it upon himself to intervene "as a friend of the people", in order to appeal a medical question to a jury of laymen.

Unfortunately the old right of trial by jury still rules in the adjudication of insanity, if the accused, or someone on his behalf, appeals against the verdict of the lunacy commission. It would be about as reasonable to expect the butcher, the baker, and the candle-stick maker to determine the correctness or otherwise of the Einstein theory of relativity, or the reliability of Champollion's work in deciphering the Egyptian hieroglyphics.

Mayor Bailey is apparently not a believer in medical experts, but has complete faith in the ability of two salesmen, a dry goods clerk, a coal office clerk, a grocery clerk and the driver of a laundry wagon to arrive at a more informed, more deliberate, and more balanced judgment as to the working of the human mind.

The denial that Turley was insane in such a way as to be legally not responsible for the death of Mrs. Wise was argued before this heterogeneous group of jurymen—good men and true, no doubt, but in no way qualified for their special job—with the usual bitterness and special pleading of a counsel who, however much conscience he may have in private life, forgets while in court every principle but the ambition to win his case. The jury, more at home in other departments of human activity, expressed the opinion that the prisoner was sane; although during these and earlier proceedings the slayer manifested—for a sane man—a very peculiar apathy and indifference to what was being said about him.

Thus the law made its second serious blunder in Turley's career; the first having been the failure to investigate his sanity when, some eight months ago, he was prosecuted for selling mortgaged property to the woman he later killed. The servants of the law may thus, in a way, be held responsible for the death of Mrs. Wise; but behind this responsibility is the broader responsibility of the society which is so "pound foolish" that it will not spend money to weed out the mentally diseased from the common criminal, and also, perhaps, the responsibility of the great body of physicians for failing to bring this lesson home sufficiently to the public.

At first sight it might appear that the jury's decision as to Turley's sanity must necessarily mean that another jury would convict him of murder in the first degree, with the result that he would be sentenced to hanging or to life imprisonment. For the future of society this would be a reasonably safe outcome. But at the further trial some other "friend of the peo-

ple" will argue just as strongly that Turley is really insane and that it would be a crime to hang or imprison him for life for what he did in a state of moral unconsciousness; and the upshot is likely to be that this mind diseased in a body diseased, being convicted neither of insanity nor of murder, will be let loose to again endanger human life.

"The law", said Dickens, "is a hass". The total expense of the various court proceedings involved is likely to run into twenty-five thousand dollars or more. This of course will come from the taxpayer's pocket. What could have been the real motive that led a certain public official to interfere in a technical matter which was proceeding satisfactorily without his hindrance, and of which he knew nothing? Several years ago he was carried into office on the claim that he would give the people a five-cent car fare. The votes were captured, but not the nickel car fare. Can it be that, with his ear always to the ground, he was misled by public excitement concerning Mrs. Wise's demise into believing that by getting Turley hanged he would capture a few more votes at the next election?

W. H. C.

STATE BOARD OF HEALTH NOTES.

"His Acts Being Seven Ages."

The fifth age:

"And then the justice,
In fair round belly with good capon lined,
With eyes severe and beard of formal cut,
Full of wise saws and modern instances;
And so he play his part."

For the first time since tab has been kept on the death rates in the several decades of human life, the census (of 1920) shows a reduction of twelve percent in the death rate between the ages of forty-five and seventy-four. This reduction is due to the lessened mortality from tuberculosis, acute nephritis, heart disease, Bright's disease, typhoid fever and accidents. How shall we account for these results? We surmise that the control of such diseases as scarlet fever and diphtheria which leave their impress on the kidney in early life has had something to do with it. Better water and foods have lessened the strain on the system.

The modern man has learned to enjoy fresh air, and I am sure that his sprinting record has improved, for now he is either "quick or dead" when he essays to cross the street which is crowded with death dealing autos. He sometimes seems not to be proud of his "fair round belly with good capon lined." Now, with his setting up exercises, with or without music, he fights his fat and "middle age spread". He finds that he is just as comfortable when he is careful as to what he puts into that fair round receptacle; that too much animal protein is conducive to various and sundry discordant feeling, that podagra is less apt to pay him nocturnal visits, that leafy vegetables and the lacteal fluid which he enjoyed in younger days are gratefully acceptable. He is also found in

the office of his medical man, not because he is sick, but because he wants to know how to keep well—something of the Chinese plan. His doctor proceeds to try his blood pressure, etc., and probably tells him to slow down, to smoke less and better—a postprandial cigar being enough—to use a diet less harmful to the kidneys, and so on.

Now we have the Wassermann reaction to clear up many obscure troubles. When I was a student, I was told, "If you cannot find out what ails your patient, treat him for syphilis." Then, we had to guess; now we see more clearly. So the "justice who has loved not too wisely but too well" may have his follies aftermath largely relieved.

The modern man is now apt to begin to think of how to keep off as long as possible the inevitable effects of age. He may find many ways by examining the literature on the subject—entirely too many to mention in the space allowed me. Dr. Lorand, in his "Old Age Deferred", gives twelve commandments for living to the age of the patriarchs; most of these are commonplace. He even advises the use of the organs of animals to take the place of those that are failing by reason of age or disease, which same I believe has not the wholehearted support of the medical profession. I also see mentioned, "Honor thy father and thy mother", "Wisdom", and "If one finds a bird's nest and lets the dam go, but keeps the young, it will prolong his days." It is said that a man ought to live five times as long as it takes him to get his growth; then that means he ought to live to be a hundred years old.

As Antony said to Bassanio when he was ready for Shylock's knife:

"For herein fortune shows herself more kind
Than is her custom; it is still her use,
To let the wretched man outlive his wealth,
To view with hollow eye and wrinkled brow,
An age of poverty."

What is the answer then? "Put money in thy purse" while the putting is good, for after you are middle aged they say if you were any good you would be worn out; if you are well preserved, then you have not been a good worker and are not wanted.

J. W. M.

THE JUBILEE VOLUME.

It is expected that the Jubilee Volume in celebration of the Semi-Centennial of the Colorado State Medical Society will be ready for distribution at an early date. It will be a volume of approximately one hundred and fifty pages, handsomely bound in buckram, and uniform in size with Colorado Medicine.

It will contain a preface, an historical sketch of the early medical development of Colorado, an account of the organization and progressive growth of the State Medical Society, a list of the medical journals published in the state, and the titles of all publications by members of the profession resident in Colorado. Under the name of each contributor to medical literature will ap-

pear a list of his or her published articles, with place and date of publication.

According to a previous understanding, it is the intention of the Publication Committee to send about two hundred and fifty copies to the principal medical libraries in the United States, Canada, and a few to other countries, with the compliments of the Colorado State Medical Society. Contributors to the guarantee fund for publication will each receive a copy free of charge. The work is of interest to every member of the Society and will be on sale at five dollars (\$5.00) per volume. Orders enclosing \$5.00, money order or check, should be sent to Dr. W. A. Jayne, Chairman of Committee, 535 Majestic Building, Denver, Colorado.

W. A. JAYNE,
EDWARD JACKSON,
HUBERT WORK,
Committee on Publication.

THE WAR AGAINST CANCER.

That the educational work in the field of cancer is nation-wide is evidenced by the following trenchant editorial which appeared in the New York Sun of July 12th of the present year:

"New Efforts in Cancer Battle."

"One by one the scourges of mankind are being conquered by science. Typhoid, typhus, malaria, smallpox, yellow fever, tuberculosis and cholera are fighting losing battles against modern knowledge of hygiene and sanitation. Some have been completely eliminated from civilized communities; others have been so definitely defeated that their disappearance is only a matter of time.

"Other diseases remain unconquered, however, one of the most dreaded of which is cancer. This scourge caused the death last year of 90,000 persons in the United States. It is of interest, therefore, that the American Society for the Control of Cancer has, through recent gifts, been enabled to extend its activities and to promulgate an educational program that will put the facts about the disease into the hands of all who should have them. Early recognition of the disease and prompt treatment are essential in its control, and education of the public is vital.

"Last year the society initiated a vigorous educational campaign against cancer, and it is now planned that a week shall be set apart in November for a similar purpose. Success of the campaign promises an inevitable reduction in the death rate from the disease."

The Cancer Campaign of this year will be carried on during the week November 12-18. Colorado is looked upon as a banner state in this life saving work.

New and Nonofficial Remedies.

During July the following articles were accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

The Abbott Laboratories: Neocinchophen-Abbott Tablets 5 grains.

Louis Hoos: Hoos Albumin Milk.

Mallinckrodt Chemical Works: Benzyl Benzoate—M. C. W.

Original Articles

A FEW REMARKS ON BRILL'S PSYCHO-ANALYSIS, ITS THEORIES AND PRACTICAL APPLICATION.

LEO V. TEPLEY, M.D., DENVER.

The author states from the very outset that psychoanalysis concerns itself with the individual as a personality and enters into the deepest recesses of the mind, and that by it we gain a real insight into the psychoses and neuroses. By means of psychoanalysis, it is further asserted, we are able to look into that part of the mind about which, before this science (psychoanalysis) was evolved, we knew almost nothing. The hitherto unknown region is the Unconscious. This, our Unconscious, we are informed, pervades our conduct in the minutest details and governs every act of our lives. Not one in a hundred knows the exact reason why we smoke, chew gum, play golf, prefer certain colored ties, dress in a given way, or why we like or even love some people and dislike others. The real causes for our daily and hourly actions are hidden from us and the majority of assigned reasons are mere pretexts; the true motives being in the Unconscious, and therefore absolutely inaccessible to us. They can only be brought to the surface by psychoanalysis. In the Unconscious are deposited, and have been deposited since our birth, all our experiences, everything that has ever happened to us; in it there is no ending, no past, no forgetting.

From certain mental diseases, from mistakes in reading, writing, and speaking, from forgetting names, from certain actions (of the type called "symptomatic") and particularly from dreams, we learn the behavior of the Unconscious. "The dream is the chief means by which we may penetrate deeply into the Unconscious." Freud calls it the royal road to the Unconscious. "The dream is not a senseless jumble, but a perfect mechanism. It always has a definite meaning, always treats of the inmost thoughts of personality, and when analysed, it is found to contain the hidden fulfilling of a repressed wish". "There is no absurd or trivial dream." "Expressing as it does an unconscious wish on the part of the dreamer, it is a very important element of him, and emphasis is again laid, that in experienced hands it is the most valuable instrument for penetrating the mind, and that dream analysis is the most finished work of psychoanalytic investigation."

Dreams are not only "perfect mechanisms" but very complicated ones. Thus they consist of a manifest content, the part which is recalled by the dreamer on awakening; and a latent content, the material derived from the dream by the psychoanalyst when the patient gives himself up to free unrestrained association of ideas. The manifest content of the dream has been produced by four main processes which are called condensation, displacement, dramatization and secondary elaboration.

The distortions and the apparent absurdities in dreams are the work of the psychic censor. The latter makes use of symbols in dreams whenever a wish fulfillment has to be repressed because of its contrasocial character. Psychoanalysis invariably finds it to be a repressed sexual desire.

The life cycle of the Unconscious as shown "beyond doubt" by dream analysis is summed up somewhat as follows: From the very minute of our birth the Unconscious desires to return to the prenatal state, but as this is hardly possible (because it is asocial, I suppose) the wish is repressed, and the infant derives pleasure from nourishment. The craving for satisfaction grows along a few simple lines, chiefly nutritional and sexual. In infancy we possess love creating erogenous zones. The labial and anal zones are the sources of sexual feeling at this period. With the advance in age these zones are centered in the genital zone. "Sex is born with us. It shows three distinct divisions, an infancy, a latency and an adolescent period." The earliest is the lip zone and thumbsucking is the classical example of infantile sexuality. The entire skin of the child is an erogenous zone and up to the age of five it is without shame and enjoys showing its naked body and feeling the air and other objects on all parts of it. This is called "exhibitionism". The next stage of the individual development is the narcissistic (from the Greek myth of Narcissus who was infatuated with a view of himself he got in a pool). At this period the child regards all things in relation to itself, to its own body, and not as related each with some other thing or with all other things. (It is pathetic indeed that our children after they have passed the age of five do not take more interest in Professor Einstein's Theory of Relativity, Darwin's Origin of Species, or Shakespeare's question, "To be or not to be?"). If the sexual psyche should fail to develop normally this narcissism will result in a homosexuality which may become fixed or permanent. During a certain period of our life homosexuality is present in all of us, but after a time in normal development it gives rise to the heterosexual state. "There is not a single peculiarity that any individual can show, that is not at the bottom a sexual peculiarity, derived from the retardation or complete arrest of some part of his sexual development." This sexual characteristic with which we are born is the prime incitor or mover of all human actions and of all ages of human life, and is designated as the libido. We are all destined to direct our libido, e. g. first sexual impulses to our mother. This is not at all strange, we are consoled, when we realize that after all our lives are merely overlain or veneered with a partial civilization, and this veneer is not more than skin deep. The infantile unconscious constitutes by far the greater part of our behavior; the unconscious wish is ever with us and it desires the possession of the mother above all else in the world. This is known as the "Oedipus complex", and it plays a very large role in the life of the individual. To quote the author's own words: "The deflec-

tion of love from the mother to strangers occurs with the advance of age, but the entire absence of the mother ideal is only apparent. It is not eliminated, but repressed into the Unconscious, and there it continues to exert its influence throughout the whole life of the individual. Psychoanalysis of normal persons shows beyond any doubt the enormous influences of the unconscious parental complexes.

Repressed complexes or past emotional experiences strive for expression and if a normal vita sexualis is found all is well and good. If a satisfactory substitute for the libido is found, "if it is successfully sublimated," the outcome is not very disastrous but the resultant psychic conflict for libidinous expression may result in a psychosis or neurosis.

Thus we are told that hysteria is the result of a conflict between the libido and a sexual repression and the hysterical symptoms have the value of a compromise between both psychic streams. Sexual experiences of early childhood play the same role in the etiology of the compulsion neurosis as in hysteria, but whereas the latter is characterized by passivity, the former is noted for its aggression or sexual activity. Obsessions are always transformed reproaches returning from repression and always refer to a pleasurable accomplished sexual act.

Paraphrenia is due to an "executive weakness in managing the libido, to a trauma of the love life from which they never recover." Paranoia is due to the withdrawal of the libido without the ability of finding a substitute. The paranoid character lies in the fact that as a reaction to a defense of a homo-sexual wishphantasy there results a delusion of persecution. "Clinical facts", apologetically continues the author, "teach us that paranoiacs have brought along a fixation in narcissism, and we therefore assert that the return of the sublimated homosexuality to narcissism furnishes the sum of regression which is characteristic of paranoia." The anxiety neurosis as well as many of the other psychoses are due to a failure of libidinous adjustment as dictated by the Unconscious.

A few examples of how psychoanalysis explains the hidden mysteries of our unconscious actions will make things clear. A patient has developed a typical compulsion neurosis which consisted of a rapid upward movement of his arms, as though holding back and pushing up something. On questioning the patient further it was found that it concealed the obsessive thought, "God may get into me." This action was a protective one against the thought and signified "I will pull Him out again." Psychoanalysis brought out the fact that about six months previously to this compulsion a fellow workman asked him to look out of the window where he saw two dogs in the act of copulation and remarked, "How would you like to be the top dog?" This was very embarrassing to him but a number of fancies and thoughts came to his mind. One thought was, "How would it be to get into the dog?" This thought was followed by another one,—"I will not get into the dog, the dog may get into me." Now if the

word d-o-g is read backward you will find that it spells God and gives the key to all obsession (One still fails to see in this, "I will pull Him out again"—whether the patient is pulling the dog forward or is pulling God backward).

Example of automatic actions: A woman continued to oversalt everything she cooked for her husband. At the same time she persistently forgot to place salt on the table. By this she meant to express, "I am in love, but you are not." For it is said that when a woman is in love she oversalts the food.

A young married woman asked her husband for some money. He gave her a ten dollar bill and as he continued talking to her she suddenly threw the money away. Her husband noticed it, picked the bill up without her perceiving it. She later missed it when she went to pay for something in the store. Analysis revealed that this woman wished to contribute ten dollars monthly to a charitable society but her husband told her to discontinue it temporarily, to which she was compelled to agree. It was after this conversation that she threw away the bill. This action was equivalent to the thought—"You do not allow me to give it to charity so I throw it away in order that some poor person may find it." That is, it is meant as a sacrifice.

There are numerous similar illustrations of psychoanalytic research; four hundred and sixty-eight pages in all (and numerous apologies and regrets for lack of space). The ones cited are very typical of all the interpretations of the compulsion neurosis and "symptomatic" actions. The same general method of investigation is applied to the study of many of the psychoses. The one all important point in their true interpretation is the careful study of the dream mechanism, as the dream is the royal road to the Unconscious.

The use of symbols is the greatest attribute of the dream work. They are employed by the "dream censor" in order to conceal the real wish of the dreamer from any but the analyst, who always sees in them sex symbols. Every elongated object from a pin to a telegraph post is symbolic of the male organ and should there happen to be anything suggestive of a cavity the problem is instantly solved.

As one writer puts it, if one is sincerely bent upon the discovery of ciphers in Shakespeare there is always some Ignatius Donnelly to do it. Psychoanalysts are past masters in this art. It would really be amusing were it not so pathetically nonsensical, and so diametrically opposed to common sense and every day experience. The dream, "the chief means for penetrating the mind", is not nearly so complicated a mechanism as psychoanalysis makes it out to be. Nor is this treasure the possession of the leaders of the "new psychology". Long before the ten commandments and even long before any kind of a taboo existed, in those days when it was perfectly gentlemanly and moral to decapitate one's fellow man and ingest him, body and soul, it so happened, that the fuller was the stomach of the conqueror, the more he dreamed of his

victim resisting him. Anthropology has abundant illustrations of this statement. That many of our domestic animals, the dog, cat, etc., dream, is a matter of common observation. Until psychoanalysts can prove that in them too a "latent content when analysed in experienced hands always reveals a wish fulfillment of a suppressed libidinous desire", the very foundation of this new science is unreliable.

Bergson contends that dreams probably result from "relaxed consciousness", in other words, from a relaxation of conscious mental control and therefore they are so often out of keeping with what is known of one's previous life. Everyday experience supports such an observation. It is no exaggeration to state that in ninety percent of cases the starting point for dreams can be found in our previous experiences. We usually dream of what we have done, witnessed, listened to, read of, thought of, what we have been most impressed with, of our failure and success, of our joys and sorrows. People do not think in symbols and still less do they dream in symbols.

The sexual instinct doubtless plays an immense part in the conscious and subconscious mind of most individuals. Unquestionably some dreams may have a pure sexual content, but to apply this to all mental phenomena is to be like that country boy when he came to the city for the first time, saw a woman seven feet tall and instantly concluded that all women in cities were of that size.

Mothers have observed from time immemorial that if for some reason a babe did not get enough food it resorted to thumbsucking. (This is very likely a reaction to the instinct of hunger, setting the salivary glands to manufacture saliva and thus to a certain extent satisfy the stomach. That during starvation the body metabolizes its own tissues is an undisputed fact in human physiology). Baby specialists the world over take thumbsucking in infants as an indication of insufficient nourishment. Once this habit becomes established it may persist in neuropathic and neglectedly brought up children long after infancy. It is no more a "classical illustration" of infantile sexuality than a telegraph post is symbolic of the male sexual organ and field glasses of sexual curiosity.

The other classical illustration of "exhibitionism", the erogenous zone of the entire skin in children is not the working of the Almighty but the fancy of the psychoanalysts. Witness the fact that children hate just as much to be undressed (to exhibit) as they do to be dressed. Young children do not care particularly about their attire because they are children; and above all because they know that they are our children and that we all love them, "exhibitionism" or no "exhibitionism". Robert Louis Stevenson, who knows the soul of the child as well as Shakespeare does the soul of the lover, gives us a very good picture in his "Garden of Verse" and "Chapter on Dreams" of the actions, thought and conduct of the child. Whosoever sees infantile sexuality, auto-eroticism, narcissism, exhi-

bitionism in its action must suffer from a catarract on the calcarine fissure.

The importance of the libidinous element is just as exaggerated as are the workings of the dream. Sexual ideas and sexual emotions do not by any means monopolize either waking life or the dream state. The bulk of human activities is sprinkled with sexual intervals and not dominated by any kind of a libido. There are many powerful emotions besides those of sex, among which Woodworth in his "Dynamic Psychology" mentions fear, disgust, curiosity, anger, self assertion, the gregarious instinct, the instinct of acquisition, imitation, and so forth.

To summarize the entire psychoanalytic philosophy, one fails to see any reason for the immaculate creation of a psychic censor, a wide-awake critic guarding the dream of the sleeper and constantly supplying him with symbols. It also creates out of nothing an unconscious in which there is "no end, no past, no forgetting" and which dominates the actions of every hour of our entire life. All human activities in both the waking state and dreams are interpreted in terms of the libido. Last but not least, this philosophy does not believe in calling a spade a spade. In other words, the manifest content of the dream, or that part which is most vividly recalled by the dreamer does not signify at all what it appears to, but is merely a sexual symbol. As there is not a single object in this universe of ours, to which a sexual significance cannot be applied, the work of the psychoanalyst is indeed an easy one. No gulf in his line of argument is too broad to bridge over, and no mouthful of improbability is too large to swallow in order to prove the correctness of his arguments. Everything imaginable is a sexual symbol. The key, a lock, a snake, an open fireplace, the horse, field glasses, a church, a steeple, the basement, in fact everything about us. Again, symbols signify one thing one time and another thing another time; and should they not fit in then they are read backwards, d-o-g becomes G-o-d, etc.

If there is any value and truth at all in symbolism it is, according to Frederick Peterson, in the fact that it reflects the symbolism of the analysts themselves. "There is more to be learned from the interpretations published of the psychology of the analyst than of the psychology of the dreamer. The analyst reveals himself in his analysis, his anticipation, his intelligence, his learning, his logic, and his wish, for if there is any wish brought clearly to light in the analysis it is that of the interpreter."

In conclusion a few words about the details of the requirements and applications of the psychoanalytic technic must be stated. As Brill himself puts it, "Age of the patient plays a part in the selection for the psychoanalytic treatment. Persons near or over the age of fifty lack the plasticity of psychic processes. Youthful persons, even before puberty, are excellent subjects for analysis. There must be a mutual understanding and liking between doctor and patient. Psychoanalysis presupposes intimate acquaintanceship. One must, however,

be on his guard lest the transference be carried too far. One must remember that he is dealing with people whose libido is striving for fixation, and care and tact must be exercised to remain friends only." The patient is required to lie on a lounge, and the psychoanalyst sits behind the patient's head, at the head of the lounge. The object of this position is to avoid all muscular exertion and distraction, thus allowing a thorough concentration of attention on the patient's own psychic activities, and he relates all the thoughts occurring to him, however painful, embarrassing, and unimportant.

The great Russian writer, Leo Tolstoi, says somewhere that no message or truth worth while listening to was ever made with a cigarette in one's mouth. *Mutatis mutandis*, does this apply to truths uttered by one whose libido is striving for fixation and who is comfortably lying on a lounge in a quiet doctor's office, with the physician sitting behind his head (on his guard lest the transference be carried too far)?

"Only those who are themselves free from all sexual resistance and who can discuss sex in a pure minded way should do psychoanalytic work", are we further instructed; a thought naturally intrudes itself: What about the "Unconscious, which includes all those psychic manifestations of which the person is unaware and which can be brought to the surface by analysis"? Does not this imply that the psychoanalyst himself should be thoroughly analyzed in order to bring to the surface the unconscious psychic processes? Another thought is, what of the patient who is near the age of fifty or above? Many other thoughts occur to one's mind. The more one thinks and analyzes this philosophy the more hopelessly illogical it appears, and he can't help but conclude that the whole thing is preposterous.

A PLEA FOR THE EARLIER ADMINISTRATION OF ARTIFICIAL PNEUMOTHORAX.*

ARNOLD MINNIG, M.D., DENVER.

History.

The history of lung collapse therapy is much like that of any new invention or procedure. It had to be pounded and pounded into a none too receptive medical world, first in Italy by Forlanini, then in this country by Murphy in 1896, then in Germany by Brauer, in 1906. And finally when, in this country, that excellent article by Floyd and Robinson¹ in 1911 appeared, the administration of artificial pneumothorax as a therapeutic measure became an accepted fact and has since steadily grown in popularity.

Is the Treatment Fundamentally Correct?

Lung collapse as a therapeutic measure is based upon the principle that the only known cure for tuberculosis is rest. Nature must do the work but conditions must be so arranged that nature has a chance.

All physical life is the building up and tearing down of cells. Health is simply an equilib-

*Read before The Denver Sanatorium Association, April 25, 1922.

rium between the tearing down and the building up processes. The two great tearing down agencies are work and microorganisms. All work tears down cells and the healthy body builds up new ones to take their place. A diseased organ that is continuously working cannot build up new cells fast enough to replace those destroyed. The work, in conjunction with the microorganisms, tears down the healthy cells faster than they can be replaced. If we stop the work we eliminate one tearing down agency and give the organ a chance to throw off the diseased cells.

In the tuberculous lung this equilibrium between building up and tearing down has been disturbed and some means must be found, if possible, to restore it. This is what we aim to do with pneumothorax. By collapsing one lung and putting it in a splint, as it were, we enforce rest. We eliminate one tearing down agency and give the building up forces a chance to do their work. We must therefore answer in the affirmative the question that our fundamentals are right.

Indications.

In the earlier days of pneumothorax treatment it was generally believed that the only cases suitable for treatment were the unilateral cases.

It was and still is the accepted and most efficient weapon we have in combating recurring and obstinate hemorrhage.

Cases other than tuberculosis, as pulmonary abscess, bronchiectasis, are also indications. Pulmonary abscess, if treated early enough, which always means before too many adhesions have formed, should always be amenable to this type of therapy.

Now note the change in indications after a few years experience. Today it is generally accepted that the case need not be unilateral in order to be suitable for artificial pneumothorax. We now feel that any case which is not moribund is suitable and, furthermore, that any case which does not respond to the ordinary methods of treatment, that is, rest and general sanatorium care, should be given gas.

I now propose to go a step farther, and that is to give the early case the advantage of pneumothorax treatment. There is nothing new about this idea. Murphy² in 1913 said: "The time for giving the treatment is exactly the same as for treating surgical tuberculosis in any portion of the body, which means that it should be begun in the earliest stage of the disease. The earlier the treatment is begun the better the prognosis."

Beggs³ says: "In tuberculosis to wait for a last chance is to wait for a lost chance," and that "a decidedly earlier treatment by this method is much to be desired."

Gwerder⁴ finds that since the war the cases of tuberculosis are much more severe and more neglected. He concludes that where there is fever of from four to six months' standing the temperature usually persists and that if this temperature does not disappear in the first few weeks of sanatorium care the prognosis is bad,

so that in these cases there is nothing to lose and everything to gain by administering artificial pneumothorax.

Contraindications.

The more experience we have in giving gas the less we consider contraindications. The reason they are growing fewer is because we now know that the danger incident to the administration of gas is trifling and practically negligible if the treatment is properly given.

However, the cases which may be designated as contraindications are those which are already moribund, those with advanced intestinal complications, and those with weak or failing hearts. Renal disease was formerly also considered a contraindication, but I find that very often the pneumothorax causes a favorable outcome to the nephritic complication.

The Dangers.

Pleural shock I think is now generally avoided since we do not use cocaine as a local anesthetic. I have been administering artificial pneumothorax since 1913 and have never had a case of pleural shock.

Air embolism as a danger should be absolutely avoided provided gas be not introduced until the manometer shows the needle to be free in the pleural space.

The possibility of putting too much burden on the opposite lung is a recognized danger, but this can be avoided by giving only small quantities of gas. Besides Simon⁵ and Betchov⁶ have shown that there is also an increase in negative pressure in the collateral lung. Consequently, this fear may be practically ruled out.

What I have indicated under the heading of dangers may also be included under the head of complications, but in addition I will add:

1. Pleurisy with effusion or dry pleurisy from stretching of adhesions. This dry pleurisy is common. The effusions, since we are giving so much smaller quantities of gas, are slight and negligible.

2. Perforation or rupture of a lung is rare, but may occur where too high pressures are used. Here death follows from the development of a pyo-pneumothorax.

Adhesions.

We now come to the great dread we all have for the success of the treatment in the prospective patient. It is indeed discouraging to find a patient who is doing badly, who from x-ray and physical findings should be a suitable case for the treatment and, when we attempt to get a free pleura, be confronted with failure on account of adhesions. And here is one, if not the greatest argument why we should attempt the administration earlier.

In a study of a large number of cases by American authors I find that adhesions prevent the giving of gas in one out of every three cases where it is attempted. Consequently, is it not wrong to wait until this last chance is perhaps a hopeless one? So here we have the great reason why we do not get better results—that because we have waited too long, adhesions, our

greatest of all obstacles, have been permitted to form.

Professor Saugman⁸ met failure on account of adhesions in forty-three out of one hundred and thirty-eight cases.

Change in Quantity of Gas.

Another marked change in the treatment in recent years is in quantity of gas administered. We now know that it is not necessary to give the large quantities we formerly gave. I have found as small amounts as 50 cc. to be adequate to stop a hemorrhage. I also make it a rule if there is the slightest distress at the time of injection to withdraw the needle at once.

Results of Treatment.

In suitable cases lung compression causes lessened expectoration, reduction in the temperature and pulse, improvement in the cough, disappearance of the tubercle bacillus from the sputum, and improvement generally.

I remember very well a case at the Denver County Hospital a number of years ago. He could not get along with the nurses, attendants and doctors. He had what we find in so many advanced cases, a rotten disposition. He was suffering from a toxic irritability from an overwhelming dose of the tuberculosis poison pouring into his system. After the second injection of gas his disposition improved and he got along better with everybody from that time on.

Statistics by various writers of the results of treatment give a variety of results, yet they are all favorable.

As early as 1915 Sachs⁷ reported what is about the present-day result of treatment. He found in 1,108 cases reported by twenty-four American authors that forty-nine percent of cases were failures, unimproved or dead, and fifty-one percent improved. Among the so-called failures fourteen percent were cases where there were too many adhesions, so in reality the treatment could not be used and hence they should not be considered in the statistics.

Sachs says, "No man can observe the increased comfort and the consequent happiness in even the hopeless case without appreciating that this method of treatment has a distinct and decided value."

Minor⁹ uses artificial pneumothorax only in advanced cases where a high percentage of good result could not be expected. Even among these he restored to working efficiency twelve out of one hundred cases, and in twenty others he prolonged the life from a few months to as long as two years with great comfort and with working efficiency. In eleven cases he was unable to get the pleural space. Forty-four of the one hundred cases he classes as failures and these due more than anything else to adhesions. Six of the failures were in acute cases. Twenty-one showed excellent temporary improvement with such amelioration of condition and prolongation of life as fully to justify the method, although in eleven it was impossible to prevent an unfavorable termination.

All observers agree that severe, repeated and persistent cases of hemorrhage call for lung

compression no matter how early the stage of the disease.

In general we may summarize the results of treatment in this manner: The administration of artificial pneumothorax in the past has generally been put off until it was used as a last resort. In spite of this there has been improvement in these hopeless cases in from thirty to sixty percent where complete or even partial collapse was obtained.

Discussion.

We have in the production of artificial pneumothorax a simple, comparatively harmless method of therapy as we now give it. It has been put to the severest possible of therapeutic tests, the hopeless consumptive, and in one out of two cases there has been improvement or recovery, where it was possible to give the gas.

I consider the treatment of tuberculosis much as one would consider an investment. Your problem is that your patient has tuberculosis. Now, how bad is this tuberculosis? By observing the patient for a month or two (usually this is long enough) you can estimate fairly well whether or not he is making progress. If there is the slightest doubt as to whether the patient is going to get well with the ordinary methods of treatment he should be given artificial pneumothorax at once, because the formation of adhesions is the one insurmountable barrier, and can be overcome only by giving the gas earlier in the game. Many times we are mistaken in our prognosis. There is always danger when a patient is given the ordinary treatment that he may get some intercurrent infection, influenza, for instance. Had we used gas earlier we might have been able so to build him up that he could have thrown off the new invader without difficulty.

We are in an age when more than ever before, time is money. It takes a long time for any person afflicted with tuberculosis to get well. A very large majority cannot afford the one, two, three or more years it takes. Is it not reasonable then, when by this simple operation we can cut down his period of illness by one-half or one-third simply by supplying a filling station, that we should propose it? Yes, urge it, and urge it in time? Are we not by so doing rendering the patient and community a real service? Not only that, is it not wrong not to do it?

Summary.

1. Collapse therapy unquestionably restores to practical health many otherwise hopeless cases, and prolongs the lives and increases the comfort of many others.

2. It should be used in all cases of obstinate hemorrhage.

3. It should be used earlier, much earlier.

4. In justice to the patient it should be considered in every case of advanced or moderately advanced, slowly or actively progressive tuberculosis in any stage because the natural trend of all these is death.

As Woodcock¹⁰ says: "There are dangers in connection with the production of artificial

pneumothorax but the greatest—and about this let there be no mistake—is the neglect of it.”

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A PLEA FOR CONSERVATIVE SURGERY IN THE TUBERCULOUS.*

M. D. BROWN, M.D., DENVER.

In Colorado perhaps more often than in any other section of the country we are called upon to operate upon tuberculous patients, and I want to impress upon you the importance of carefully considering each case individually as to its outlook after operation, especially as to a question of balance, and to give you the histories of a few cases in which I have operated and which have turned out badly.

There are a number of acute cases, where it is a question of immediate operation, that we do not need to consider at all, but there are a number of other cases which call for the use of judgment as to operating, as it is more or less of a speculation as to whether or not the benefits derived will justify the chance we are taking in upsetting the balance—which needs only the proverbial straw to upset.

Very recently Dr. Robert Levy in a most excellent paper has gone quite minutely into the question of tonsil operations in the tuberculous and has come to the following conclusions: "The symptoms for which operation may be considered are local and general. Cough, repeated sore throat, sense of discomfort, and local pain are all legitimate indications for operation. They cannot, however, be accepted at face value, but should be studied in connection with certain general symptoms such as fever, malaise, loss of weight, etc. That these general symptoms may also constitute in themselves reason for operation is well recognized, but an attempt should be made to eliminate all other sources from

which they may arise before the tonsil should be considered the sole or even the most important factor. Also there is danger in a too conservative position as there is in too radical a stand. Pitfalls await the unwary and until more definite data are presented, no phase of the so-called tonsil question calls for greater individual care in the selection of cases for operation."

As to the matter of balance, just what happens in these patients, whether it is shock or a disturbance of metabolism, or the loss of blood incident to the operation, does not matter. It is a well established fact that the tuberculous are not good surgical risks.

We are often confronted with such facts as these: A given patient is actively tuberculous or perhaps has an arrested lesion and has quite seriously infected tonsils or a badly deflected septum. We know that focal infection is an established fact and our patient may already be infected to such an extent that he has developed an arthritis or even perhaps a very serious heart lesion. He may have such a serious deflection of the nasal septum that he is absolutely a mouth breather. Under these conditions are we justified in surgical procedure?

Every case is a law unto itself and each must be worked out individually, but I am convinced that there are more errors of judgment made when we have decided to operate than when the decision is otherwise. You are doing your patient a great deal more good when you refuse to do any surgery that it not absolutely necessary than when you operate on the possibility that you may do some good.

In our work at the Jewish Consumptives' Relief Society there has been quite a bit of surgery performed on the upper respiratory tract and while we have had in a considerable number very satisfactory results, there have been a number that were not benefited to any marked degree and others who have been made decidedly worse, the date of their decline having been definitely established as coincident with their operation date.

We are pessimistic on the question of "Surgery on the Tuberculous" and personally I believe that we are justified in observing these rules:

1. Never operate on any tuberculous patient, whether active or quiescent, unless it is absolutely necessary.
2. When operation is a matter of choice decide in the negative.
3. Always obtain the best judgment of your internist as to the advisability of operating, and if he decides in the affirmative try if possible to persuade him otherwise.
4. Always expect to do your patient harm and you will not very often be disappointed.

The histories of the following three cases will, I think, bear out my contention, and while it is impossible to say absolutely that in any one of these we would not have had the same end results, would it not have been better to have let them alone surgically? In each one of them operation was not performed until after competent consultation had advised same. With these it is not a question of judgment as to results.

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They are decidedly unfavorable. We have had many cases when it might possibly be a question of judgment as to whether results would justify the chance taken, but in these the results to the patients are clear cut. I am not reporting these cases as ones in which there have been any unfavorable local results of the operation. As far as the operation itself was concerned, in each case there has been perfect recovery and in not one of them has there developed any local tuberculosis at the seat of the operation.

In all cases operation was done under local anesthesia with cocaine applied locally and apothesine, 1%, injected.

Case 1. J. W., age 22 yrs. (No. 3385). Admitted Sept. 2, 1919. History of pulmonary tuberculosis of two years' duration. On admission patient was ambulant and afebrile. Physical examination of chest revealed infiltration and consolidation of both upper lobes. No history of hemoptysis. Tonsillectomy on Dec. 4, 1919. Considerable bleeding. Uneventful recovery. Out of bed Dec. 11th. Terminal pulmonary hemorrhage resulting in death Dec. 15, 1921.

Case 2. B. S., age 19 years. (No. 3465). Admitted Oct. 31, 1919. History of pulmonary tuberculosis of one year. On two occasions had blood-streaked expectoration; no frank hemoptysis. Physical examination on admission showed infiltration to consolidation right upper lobe and left apex.

Course in sanatorium was as follows: Ambulant, afebrile, working part of the time as a waiter. Streaked sputum on Nov. 7. Tonsillectomy under local anesthesia on June 22, 1920, for enlarged and diseased tonsils. Uncomplicated immediate recovery. Well up to Dec. 24, 1920, when he had a large hemoptysis, eight ounces. Similar hemorrhages, two to six ounces, between that date and Feb. 2, 1921. Confined to bed up to March 7, 1921. Physical examination of chest made in March showed infiltration to consolidation throughout the left lung with cavitation in the upper part of the lower lobe and consolidation of the right upper lobe.

Case 3. L. G. (No. 3691). Age 22 yrs. Admitted Sept. 10, 1920. Pulmonary tuberculosis since August, 1918. Course characterized by low grade fever, 99° to 100°. No apparent complications. On admission the case was classified as a moderately advanced, active case, giving signs of infiltration to consolidation, left upper lobe and right apex. Laryngeal examination was negative. Pharynx showed greatly hypertrophied tonsils. Tonsillectomy was performed under local anesthesia Oct. 15, 1920, followed by immediate uncomplicated recovery. About Dec. 1, 1920, he began to complain of moderate dysphagia. There was a rise in fever up to 102° and 103°. Laryngeal examination revealed hypertrophied arytenoids with ulceration at the commissure and in both interventricular bands.

Course to date: Marked ulceration of deeper laryngeal structures, refractory to treatment. Temperature up to 101° to 102° daily. Cavitation through left lung and consolidation in right upper and middle lobes. In October, 1921, phy-

sical examination showed evidences of tuberculous entero-colitis.

CLASSIFICATIONS IN TUBERCULOSIS.*

M. I. MARSHAK, M.D., EDGEWATER.†

To those interested in tuberculosis the classification of this disease has always been deemed important. Classifications have been made at various times from different viewpoints. Some of these views have been retained to this day. The majority, however, have been discarded.

The earliest classification in tuberculosis was into the acute and chronic forms. The chronic forms were further classified into active and stationery, progressive and regressive; intermittent and remittent; congenital or hereditary and acquired. They also classified tuberculosis, according to type of onset, as phthisis hemoptysis, phthisis pleuritis, etc. The next attempt, and one more logical, divided tuberculosis into three types, phthisis incipiens, phthisis confirmata and phthisis desperata, to which Bayle added phthisis oculata.

Laenec classified tuberculosis into three stages. The classification was based on anatomical grounds and the stages differentiated by physical signs. The classification was as follows:

(1) First Stage: An accumulation of tubercles, detected by means of bronchophony and demonstrable dullness.

(2) Second Stage: Softening of the nodule, indicated by coarse rales, indefinite pectiloquy and bronchial breathing.

(3) Third Stage: The discharge of the caseated material, or stage of cavitation with its accompanying signs.

Cornet in 1899 used the classification: 1st, incipient; 2nd, stage of softening; 3rd, stage of cavity formation.

L. Bard attempted to classify tuberculosis in clinical groups on an anatomical-pathological basis as follows:

1st. Parenchymatous; 2nd. Interstitial; 3rd. Miliary; 4th. Bronchitic; 5th. Post-pleural.

The parenchymatous are further subdivided into (a) abortive, (b) progressive. The progressive type into (1) caseous, (2) caseo-fibrous, (3) fibrous.

King's classification first used in 1903 divided tuberculosis into six classes. First, early with mild symptoms; second, early with severe symptoms; third, advanced with favorable symptoms; fourth, advanced with unfavorable symptoms; fifth, long standing with ulceration predominating; sixth, long standing with fibrosis predominating.

Turban attempted to classify tuberculosis according to extent of lung tissue involved, by lobes.

Stage 1, slight lesion not exceeding one lobe or two half lobes.

Stage 2, slight lesion not exceeding two lobes

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†From the Sanatorium of the Jewish Consumptives' Relief Society.

or a severe lesion at most extending to the volume of one lobe.

Stage 3, more than in stage two, especially cavitation.

The stage of disease in Turban's classification is figured from the extent of lesion on the worst side as $R\ 2-L\ 1 = 2$.

The Turban-Gerhardt classification, as adopted at the International Conference on Tuberculosis at Vienna, modified the Turban by restricting stage one to not more than half a lobe, stage two to not more than one lobe and stage three to include any disease not included in stages one and two.

Trudeau in 1887, taking into account the physical signs as well as the local and general involvement, issued the following classification:

1. Incipient cases in which both the physical and rational signs point to but slight local and general involvement.

2. Advanced cases in which the localized disease process is either extensive or in an advanced stage, or in which, with a comparatively slight amount of pulmonary involvement, the rational signs point to grave constitutional impairment or to some complication.

3. Far advanced cases in which both the rational and physical signs warrant the term.

The American Climatological Association classification, though somewhat different, is based upon Trudeau's:

Incipient: slight physical and subjective signs, with history indicative of pulmonary tuberculosis. Sputum, if present, is without tubercle bacillus.

1st Stage: Definite physical signs of localized infiltration, total involvement less than half lobe, cough and expectoration with bacilli, symptoms slight.

2nd Stage: Infiltration approaching or equal in amount to one lobe; or small area of softening, cough and expectoration with bacilli, constitutional symptoms severe.

3rd Stage: Infiltration in excess of one lobe, or if less in stage of well developed excavation; more severe constitutional symptoms.

The National Tuberculosis Association has adopted the following classification:

Incipient: slight or no constitutional symptoms (including particularly gastric or intestinal disturbance or rapid loss of weight), slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours. Expectoration usually small in amount or absent. Tubercle bacilli may be present or absent. Slight infiltration limited to the apex of one or both lungs or a small part of one lobe. No tuberculous complications.

Moderately advanced: no marked impairment of function either local or constitutional. Marked infiltration more extensive than under the incipient, with little or no evidence of cavity formation. No serious tuberculous complications.

Far advanced: Marked impairment of function, local and constitutional. Extensive localized infiltration or consolidation in one or more

lobes. Or disseminated areas of cavity formation. Or serious tuberculous complications.

Acute miliary tuberculosis.

In December, 1916, The American Sanatoria Association adopted the Rathbun Classification, which follows:

Lesions:

Incipient: slight infiltration limited to the apex of one or both lungs, or a small part of one lobe. No tuberculous complications.

Moderately advanced: marked infiltration more extensive than under incipient, with little or no evidence of cavity formation. No serious tuberculous complications.

Far advanced: extensive localized infiltration, or consolidation in one or more lobes. Or disseminated areas of cavity formation. Or serious tuberculous complications.

Symptoms:

(A) (Slight or None). Slight or no constitutional symptoms, including particularly gastric or intestinal disturbances, or rapid loss of weight; slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours. Expectoration usually small in amount or absent. Tubercle bacilli may be present or absent.

(B) (Moderate). No marked impairment of function, either local or constitutional.

(C) (Severe). Marked impairment of function, local and constitutional.

Acute generalized miliary tuberculosis.

This schema offers the following combinations:

Incipient A Moderately Advanced A Far Advanced A
Incipient B Moderately Advanced B Far Advanced B
Incipient C Moderately Advanced C Far Advanced C

At the 1920 meeting of the National Tuberculosis Association the Saranac Group (Brown, Heise and Samson) asked that the word Minimal be used instead of Incipient in the National Tuberculosis Association's classification and that the x-ray findings be used in conjunction with the physical signs and clinical symptoms in working out the classifications. They also suggested that either the physical signs or x-ray findings be used, selecting the one which revealed the greater extent of the disease.

The Loomis Group (B. H. Waters and J. B. Amberson) suggested an x-ray addition to the classification which is so close to that of the Saranac Group that there are no essential differences. The x-ray additions are as follows:

Minimal: A total area involved (parenchymatous) not greater than the area to the upper level of the second chondrosternal junction on one side, both sides may be involved, in the form of mottling or an intense shadow interpreted as pleuritic.

Moderately advanced: An intense shadow, not interpreted as pleuritic, of no greater extent than the area above the upper level of the fourth chondrosternal junction on one side; or areas of rarefaction interpreted as cavities limited to one interspace; scattered areas of mottling over an area not greater than one entire lung and to the level of the second chondrosternal junction on the opposite side.

Far advanced: An intense shadow not inter-

preted as pleuritic, of greater extent than the area above the upper level of the fourth chondrosternal junction on one side; or areas of rarefaction interpreted as cavities greater than one interspace; or scattered mottling greater in extent than under moderately advanced.

If it is agreeable to you I should like to advocate the classifications of the American Sanatoria Association with the correction and additions proposed by the Saranac Group at the 1920 meeting of the National Tuberculosis Association and with some provision in that classification which would indicate the working ability of the patient.

To us working in charity institutions the question of whether a man or woman is able to work or not is of extreme importance and I have no doubt that you will agree with me that we should have some method of gauging this. Personal equation will no doubt mean a great deal in attempting to use such a classification.

At the Jewish Consumptives' Relief Society we have attempted to use working ability as a part of our classification for the past five years. Our 1929 statistics of cases discharged will give you an idea of how this works out:

	Unable to		Partially		Able to	
	Work.		Work.		Work.	
	Ad.	Disch.	Ad.	Disch.	Ad.	Disch.
Minimal . . .	13	1	0	1	0	11
Mod. Adv. . .	44	8	4	7	3	36
Far Adv. . .	127	70	3	42	2	20
Non-Tub. . .	3	2	0	1	1	1

There were thirteen admitted as minimal cases unable to work. These were discharged as follows: One unable to work, one partially able to work and eleven as able to work.

Fifty-one were admitted as moderately advanced; forty-four of these were unable to work, four partially able to work and three able to work. They were discharged as follows: Eight were unable to work, seven were partially able to work and thirty-six were able to work.

Of the 132 far advanced cases admitted, 127 were admitted as unable to work, three as partially able to work and two were able to work. These cases were discharged with the following classification: Seventy were unable to work, forty-two partially able to work and twenty able to work.

Four cases were diagnosed as non-tuberculous. Three were unable to work and one was able to work. They were discharged as follows: Two unable to work, one partially able to work and one able to work.

SOME ADVANTAGES OF LOCAL ANESTHESIA IN ABDOMINAL SURGERY.*

LANNING E. LIKES, M.D., LAMAR.

For the past nine years I have been using local anesthesia with growing enthusiasm in an increasing number of abdominal operations. The question naturally arises, "Why should we use

local anesthesia?" First and foremost, to avoid the many dangers to life of general anesthesia. I have seen patients die of post-anesthesia pneumonia, paralytic ileus, dilated stomach, nephritis, acute dilatation of the heart, and shock. All of these cases are, I believe, the results of the anesthesia and not of the operation itself.

We operate on a number of tuberculous patients. No doubt general anesthesia would be the cause of hastening the death of some of these. During my army service my observations were that the surgical mortality was appalling in empyema cases. Surgeons were changed and various methods introduced, but in spite of this the mortality remained very high. Under local anesthesia the mortality was greatly reduced. With local anesthesia it is not necessary to starve the patients beforehand and in debilitated subjects this is a great advantage. Post-anesthetic disturbance of the alimentary canal is not present. Dilatation of the stomach and intestinal paresis are eliminated. This is not only a great advantage to the patient, but a time saver to the doctor—no necessity for spending several days washing dilated stomachs.

In the tuberculous and in patients debilitated and weakened from any cause where maintaining nutrition is of vital importance local anesthesia certainly is a distinct advantage, as interruption to nutrition is very slight. Many patients survive an operation but die from metabolic interruption.

The severe pain in the back often complained of after general anesthesia is due to complete relaxation of the soft structures supporting the vertebral column. This is avoided with local anesthesia.

In diabetics general anesthesia is absolutely contraindicated. These desperate cases can be made fairly good risks with proper preliminary treatment and the use of local anesthesia. M. T. Field says, "Operation for strangulated hernia under local anesthesia is one of the good things in surgery that cannot be too highly recommended. It at once eliminates many of the dangers which make other types of acute intestinal obstruction under a general anesthetic yield such a high mortality."

The amount of blood lost during an operation has a direct bearing upon shock. The addition of adrenalin and the careful work necessary with local anesthesia gives one a better control over the blood supply.

Postoperative vomiting undoubtedly aids in the spreading of localized abdominal infection and is also a factor in recurrence after hernia operations. I recall distinctly a case on my service while an intern. During a severe attack of vomiting the abdominal wound broke open and several feet of intestines were pushed out.

Since it has been so definitely established by Crile that trauma plays an important part in shock, the successful application of local anesthesia, gentle, careful manipulation and avoidance of traction, will almost eliminate this surgical complication.

I will discuss briefly the disadvantages of local anesthesia which are more imaginary than

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real. It has been claimed that local anesthesia interferes with wound healing. I am sure this is an error and that such occurrences are due to faulty technic. In a series of over two hundred cases I had trouble with primary healing in one case and I am confident it was due to faulty technic and not the anesthetic. The patient was a debilitated subject and I was using intradermal anesthesia and feel certain that too much pressure was used. I have since discontinued intradermal and am now using subcutaneous infiltration, and have not had any trouble whatsoever with primary wound healing. In conversation with men who have had a vast amount of experience with local anesthesia I find they are of the same opinion.

Some operators are not able to satisfactorily explore the abdomen, but with increasing experience, more patience and by taking advantage of the suggestions of Farr, namely, by making use of the force of gravity through longitudinal or lateral tilting of the table, movable organs may be made to slip into the field or out of the way as desired. Aside from thorough anesthetization of the abdominal wall, the avoidance of any act that will produce pain, and the use of tilting, vertical retraction of the abdominal wall is one of our strongest strategic measures; and when this is used in conjunction with the others it will reveal the abdominal cavity to the extent of allowing an examination directly under the eye, with which a digital examination cannot compare in the matter of efficiency.

It has been said that local anesthesia takes too much time. I would like to quote from an article written by Joseph R. Eastman: "A very distinguished surgeon has recently said that he has not the time to perform prostatectomy under local anesthesia. This, I think, should be taken literally. This man, one of the most brilliant of American surgeons, is perhaps too busy to use local anesthesia for prostatectomy, although the additional time required is very slight. However, in this case, should not these old patients with defective hearts, lungs and kidneys, be turned over to those of reasonable skill who have time enough to provide for the patient the important safeguard given by local anesthesia? I have found that it cheers these old men to tell them that their operation can be done under local anesthesia without pain. It strengthens their morale. Like children, they are peculiarly susceptible to suggestion.

"I believe that the teaching of this distinguished man in relation to this particular subject is bad. So brilliant is the virtuosity of this operator, so inspiring is his personality that his visitors are thrilled by him into a state of mind in which they are prepared to believe anything he says, and in which they would give little heed to the utterances of a plodding advocate of local anesthesia. Nevertheless, if the surgeon is willing to give something of himself to his patient; to make some sacrifices of his own stamina, he can with local anesthesia safely operate upon a considerable portion of prostatic hypertrophies which, under inhalation anesthesia, could not safely be operated upon.

"Allen in his book recalls the words of Hippocrates, 'divinum est opus sedare dolorem'—'It is a divine work to subdue pain'. We have support of this in the record of the first anesthesia in which the Lord caused a deep sleep to fall upon Adam while a rib was excised. To this one might add that with the regional method it is now quite human to subdue pain in surgery and with complete safety."

Children as well as the aged make excellent subjects for local anesthesia. They lend themselves readily to suggestion. I have done two appendectomies on children, aged seven and nine years respectively.

Surgeons who use local anesthesia have long searched for an efficient non-toxic local anesthetic. I have myself never seen toxicity from novocain used in less than two percent strength with the addition of five drops of a 1-1000 adrenalin chlorid solution to the ounce. I have been using novocain since 1913. It meets the requirements for an ideal anesthesia, being non-toxic, causing no local disturbances, being readily sterilized by boiling, compatible with adrenalin and sufficiently lasting for the most protracted operations. I have used it in various strengths; before the war I was using one-half of one percent with five drops of adrenalin solution 1-1000 to the ounce. After the war was declared, owing to our limited supply, I began using one-fourth of one percent with equal success. A little more time is necessary to establish anesthesia with the weaker solution. The introduction of adrenalin or its synthetic substitute has constituted a marked advance in local anesthesia. The form in which it is commonly used is the solution of adrenalin chlorid 1-1000, in physiological salt solution, with the addition of 0.5 percent of chloretone.

The unstable nature and the admixture of organic impurities of the animal product, and the fact that it decomposes and deteriorates very easily gave rise to the desire to produce this drug synthetically in a pure form. Such a product is now on the market and is called L-suprarenin syntheticum. It has been thoroughly tested by Biberfeld, Abderhalden and Cushing, and found to equal, if not surpass, in its chemical and physiological properties, qualitative as well as quantitative, the best substances obtained from the suprarenal glands. On account of its purity, stability of action, and greater durability, it is far superior to the organic drug. Even synthetic suprarenin is very sensitive. Free alkali, air, light and especially heat cause it to decompose. It must be kept in bottles made of special alkali-free glass, and should not be exposed unnecessarily. In solution it is stable only for a comparatively short time; in tablet form it keeps practically indefinitely either alone or in combination with procain (American novocain). Another advantage over the organic adrenalin is that it may be boiled for a short time for sterilization without decomposition. Pink or red coloring of the solution is a sign that the drug is decomposed. It should then be dis-

carded so as to prevent toxic and irritating effects.

In order to avoid toxic effect a freshly prepared isotonic solution of one-half percent procain¹ (American novocain) with synthetic suprarénin should be used. A great many competent surgeons consider apothesine as good as novocain. The drug differs in two essentials: novocain is made with ethyl alcohol and benzoic acid, and apothesine with propyl alcohol and cinnamic acid. The Council on Pharmacy and Chemistry rated apothesine twice as toxic as procain.

I have never used cocain but in view of a recent conversation with Dr. Lyons of Rochester, I am inclined to believe that its toxicity has been overestimated. He informed me that he had seen no toxic effects in a series of several thousand cases when cocain one-tenth (1-10) percent with adrenalin had been used.

Dr. J. L. De Courcy states, "We have used nothing but cocain during the past five years and have yet to see a case of poisoning or even idiosyncrasy." He uses 0.2 percent in the skin and to block the nerves, and 0.1 percent for infiltration.

Dr. Eastman says, "It is, I presume, clear that the use of cocain, alone or as an adjuvant to novocain, may militate not infrequently against the preservation of a serene state of mind. I have observed this in suprapubic prostatectomies after dropping cocain into the bladder to anesthetize the mucosa, the stimulation of cerebration, the sharpened special senses, the loquacity and anxiety very promptly coming into evidence as embarrassing agencies. The lesson here is not far to seek. It is to avoid the use of cocain whenever possible." Opinions of capable men seem to be divided. Novocain has proven so satisfactory that I see no reason for changing.

Preparation of the patient is the same as for general anesthesia. It is necessary to gain his absolute confidence. He must have assurance that the operation can be done painlessly. The frequent suggestion that he will suffer no pain and complimenting him upon the courage he is displaying are often helpful to the patient. We plug the patients' ears with cotton, as the sound of instruments sometimes annoys them. A moistened cloth is placed over the eyes. The nurse engages the patient in conversation when he is inclined to be nervous.

Preliminary injections of morphin are a great aid in work under local anesthesia. The patient's senses should be sufficiently numb so he does not worry. In our first cases we were using preliminary injections of hyoscin with morphin, but owing to occasional noisy delirium produced by the hyoscin, we have discontinued its use and are now using morphin, one-fourth grain, in combination with atropin one-hundred-fiftieth grain, one-half hour before operation. A few cases have required a second injection of a sixth or an eighth grain of morphin.

Allen recommends preliminary injections of pantopon, one-sixth to one-half grain in combination with scopolamin, one-hundred-fiftieth grain. I have used this combination in a number of cases, but prefer morphin and atropin.

The details of technic are most important. I have found the 5cc. Luer, Record and Vim syringes all satisfactory, and use needles varying in length from one-half to four inches, twenty-three gauge. Again let me emphasize the fact that nothing but a freshly prepared isotonic solution should be used. In starting the injection, the patient is informed that he will feel the first needle prick. It is essential not to destroy the patient's confidence. A small fold of skin is pinched up and the short needle inserted very superficially, and almost parallel to the skin. This produces intradermal anesthesia. Subsequent injections are made subcutaneously by means of the long needle introduced through the intradermal wheal. The solution is deposited in the subcutaneous tissue as the needle is being advanced in the direction of the proposed incision. A very wide area can be infiltrated with the long needle through the single intradermal wheal. It is very easy and one becomes quite skillful after a little experience in injecting the deeper layers. The sense of resistance offered to the needle readily informs you what structures are being injected. Since the parietal peritoneum is quite sensitive, unless you are sure it has been anesthetized it may be best to infiltrate it after exposure. I have demonstrated, approximately one-hundred times, painless removal of the appendix with no injecting after the operation was started.

The meso-appendix is generally considered quite sensitive but in a patient who has had a preliminary narcotic, by the avoidance of traction it is possible to very gently apply a hemostat and crush the meso-appendix without distressing the patient. After the meso-appendix is cut the appendix can be removed without any pain whatsoever. It is not necessary to inject the base of the appendix. However, in doing abdominal surgery one must bear in mind that the meso-appendix, round and broad ligaments, mesentery, and the tissue around the bile ducts are sensitive and should be infiltrated. I use infiltration technic in all abdominal work except inguinal hernia where infiltration is combined with direct nerve block.

In closing I would like to quote from Rudolph Matas, one of the masters of local anesthesia: "Whatever may be the limitations of regional anesthesia and the objections that have been argued against it, no one can deny that it has given a new impetus to anatomic teaching; that it has placed a high valuation upon an exact anatomic training and that in this way it is making it less possible for the mere cutter, the "cut and tie" type of practitioner, to be confused with the real surgeon. For this reason alone it deserves the encouragement and fostering care of every surgeon and every teacher who has at heart the higher welfare of his science and art."

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A LITTLE MOTOR TRIP IN ENGLAND.

The Editor has requested me to write a few lines for *Colorado Medicine* on a recent motor trip in England made with Dr. Wetherill. Most of you know Dr. Wetherill and will be pleased to know that he has recovered from the hip fracture, sustained last December in Madeira, with almost no deformity. When we landed at Liverpool, he met us with his car which he had purchased in London, a new Special Six Studebaker, which ran like a top for the entire trip and never delayed us a moment for repairs.

All cars are expensive in England; a Ford sells for very nearly \$800.00, which gives a fair idea of what cars cost. A yearly license must be taken out which costs one pound per horse power, based upon cylinder displacement, or half that amount for six months. If the car has a high horse power rating, say over thirty horse power, this item of expense is considerable. American cars are popular in England because even with the high import duty they are cheaper than the English cars. The English do not go in for quantity production as we do, and in consequence cars cost almost twice as much and have not the many conveniences of even the cheaper American cars. Many of the English cars are cranked by hand and have no complete electrical equipment.

The custom is to ride with tops down unless it is raining, and as we had no rain for thirty days we saw no tops up. Even the enclosed cars are so arranged that the back lets down, so that the passengers on the rear seat are exposed.

Driving on the left is more quickly acquired than I expected. After a few trials at the wheel assurance developed and accidents were avoided. Every one who drives must have a permit issued by an authorized agent of the Government. The road laws are very liberal, as regards speed. In fact, one seemed to be able to drive as fast as desired and the police offered no objection, but everything else on the road, including people on foot, has the right of way over the motor car, hence an accident means that the driver gets the worst of it. The drivers license contains on the back blank spaces for notations by the court in case he is cited before one of these tribunals, and this body makes a notation of how his case was disposed of. After the third offense the driving license or permit is revoked. Each offense may carry a fine or imprisonment, but the third is almost sure to do so. It is very evident that accidents in England are highly undesirable. While

the laws seemingly give the motor car driver a great deal of freedom, it is expected that he will use discretion, and if it is not exercised he is laid on the shelf.

The roads are wonderful and are kept so by dilligent attention. We did not see a "detour" sign in England. They do not tear up a road for a mile or so. A hundred feet is about all they do at a time and whether it is being repaired or resurfaced, the work is carried on in such a way that one-half the road is open to traffic. This may be a little inconvenient for the contractor and his workmen, but it is certainly a joy for the motorist. Most of the roadbeds are rock and concrete, and many of them are covered with an inch or so of asphaltum. If not, they are tarred and sanded to preserve the surface and keep down the dust.

The big trucks and sight-seeing cars, and even steam engines with a train of box-cars, tax the roads to the limit. The English are fully alive to the need of good roads and they make the people who use them pay for it to the tune of one pound per horse power, for the cars that drive over them.

Creature comforts in England are few. A town of ten thousand people will have but the most inadequate garage facilities and gasoline is sold in two-gallon tin cans at about sixty cents a gallon. Once in a while a gasoline pump is seen, and more rarely still a garage will be found equipped with tools for repairs. As for having a car washed on a rack with a hose, and wiped and polished, that is almost out of the question, except in towns of one hundred thousand or more inhabitants.

This makes you think we were not enjoying this trip. Not a bit of it! We were having the time of our lives! The most beautiful country it is possible to see was unfolding on all sides. Everything was in blossom and most everything blooms in England at some time or other, hence the continuous beauty of it. Quaint villages are passed through, with houses and cathedrals hundreds of years old. The homes of former poets and men of letters whose works have made them immortal are visited in endless succession until one ceases to wonder at the greatness of England. We are proud to be of this English speaking race and are actuated to believe that the English speaking peoples must act as the guardians of the world's peace and prosperity. We whirl on and on, stopping each night at a delightful inn, where we are received by the porter, our luggage unstrapped from the car and taken to our rooms. A maid brings us cans of hot water in polished brass. We have tea, and about seven-thirty dinner. I have only one fault to find with England, and that is with the food. The material is good, but they do not seem to prepare it so that it tastes good. No seasoning is one reason; there may be several; I am not a cook, consequently not competent to do more than say that I did not like it. However, I gained ten pounds on it, so it must have been wholesome. They have daylight saving in England, so after dinner the evening was long, and upon retiring about ten-thirty we needed no ar-

tificial light. In Scotland we had enough light at two a. m. to read a newspaper.

Accommodations at the hotels and inns were moderate, from seven to sixteen shillings per day for each person, or about \$1.40 to \$3.20 in our money. Meals were about \$2.00 to \$3.00 for breakfast, lunch and dinner. While these details are uninteresting, they are essential parts and must be reckoned with. The tipping is also to be considered and should not be overdone. The English servant expects a tip, but if you overdo it you lose his respect. The tipping per day should not exceed ten percent of the cost of room and meals.

MELVILLE BLACK.

News Notes

Dr. E. J. Brady, superintendent of the Myron Stratton Home in Colorado Springs, has resigned that office, effective September 1, when he will become associated with Dr. C. W. Thompson, in the Woodcroft Hospital, Pueblo.

Dr. G. A. Hopkins of Glenwood Springs has returned home after five weeks spent in post-graduate study in Chicago.

Dr. W. H. Lewis of Hotchkiss has moved to Los Angeles, California, where it is expected he will make his home in the future.

Dr. Leslie J. Parker of Hugo is reported in the public press to have purchased an airplane to be used in making calls over a wide territory with scattered population.

Programs for the state meeting will this year be mailed to individual members of the State Society in accordance with a custom previously adhered to but departed from the last several years. The programs will contain a short abstract of each paper.

Dr. A. F. Tyler of Omaha was a visitor in Denver in the middle of July.

The Colorado Congress of Ophthalmology and Oto-Laryngology was held in Denver Friday and Saturday, July 28 and 29. Many guests from other states were present. The scientific meetings were well attended. As an entertainment feature a dinner was provided at the Denver Motor Club in Bear Creek cañon, at 7 p. m. of the first day.

Dr. Giovanni Perilli of Denver is leaving September 1 for Italy, where he will remain at least three months and may possibly resume his residence there permanently.

Since June 1 the Woodcroft Hospital at Pueblo has been under the management of Dr. Charles W. Thompson, who has purchased the institution from Dr. Hubert Work. The affairs of the hospital will probably run smoothly along in regular channels, since Dr. Thompson has been associated with Dr. Work in the management for some years.

The list of Denver doctors who have moved into the new office quarters in the Imperial Building is, to date, as follows: Albert J. Argall, Murray Barney, G. M. Blickensderfer, C. S. Bluemel, Harry C. Brown, Morrow D. Brown, Clough Turrill Burnett, H. H. Champlin, G. E. Cheley, Horace S. Cooper, Wilfred S. Dennis, Edwin G. Faber, H. S. Finney, William C. Finnoff, M. Ethel V. Fraser, M. Jean Gale, William H. Halley, William P. Hodnett, Ranulph Hudston, Edward Jackson, John M. Lipscomb, C. Walter Metz, Cuthbert Powell, Elsie Seelye Pratt, Karl F. Roehrig, William Alexander Sedwick, L. Marshall Van Meter, W. D. Stone, Leonard N. Van Stone, James B. Walton, James J. Waring and Howard B. Young.

Dr. Melville Black of Denver has recently returned from a European trip and gives in this issue an entertaining account of a motor trip in England.

Dr. Wm. A. Sedwick of Denver, who has spent

several months in California, has returned and resumed his practice of ophthalmology. After August 15 he will occupy his new offices in the Imperial building.

Otero County News.

Dr. R. G. Hersom, La Junta, has sold his practice to Dr. G. A. Colonge, formerly assistant at the A. T. & S. F. Hospital, La Junta, and purchased a residence and office at First and Lincoln, Denver.

Dr. O. C. Hargraves, also formerly of La Junta, has disposed of his practice to Dr. C. A. Morse, formerly of Alamosa, and located in North Denver.

Dr. J. W. Brown, Las Animas, recently underwent an operation for hernia at St. Joseph's Hospital, Denver.

Dr. E. W. Ragsdale, La Junta, is still, after some eight months' treatment for an intestinal condition, unable to resume work.

Dr. A. S. Brunk, La Junta, spent the month of June in Ohio and incidentally suffered from a severe attack of pneumonia.

CORRESPONDENCE.

Vienna, June 30, 1922.

To Colorado Medicine, Denver, Colo.:

The American Medical Association of Vienna wishes to have you announce through the columns of your journal the restoration of friendly understandings between their organization and the teaching body of the University of Vienna.

A special committee, elected by the Association, after a thorough investigation of the charges of discrimination against Americans, which were reported by members of our Association and published in our recent memorandum to your journal find that the men who made the accusations of discrimination were either unable or unwilling to substantiate these charges under oath; further, the courses in question were not so-called book courses and consequently were not under the control of the A. M. A. of Vienna.

It is the sentiment of this Association that the men of the teaching body of the University of Vienna have suffered by this unjust criticism.

We further wish to state, that through the efforts of our special committee, working with a like committee from the teaching body, sufficient numbers of book courses in English in all branches may be had at prices of from \$3.00 to \$5.00 per hour for the group taking such courses.

We are very glad to announce this return of friendly relations between the teaching body and our Association, and hope that this communication will be given the same publicity as was given our former memorandum.

JOHN J. GELZ, President,
B. KAUFMAN, Vice President,
WM. WILSON.

DEATHS.

Death called **Dr. A. H. Peters** of Colorado Springs on the afternoon of August 2. Dr. Peters was born in Whiteside county, Illinois, in 1874, and passed his boyhood years on a farm. He graduated from Keokuk Medical College, and after practicing a short time in Iowa, came to Colorado Springs sixteen years ago. For a number of years and at the time of his death, he was county physician of El Paso county and had charge of the poor of the county. Dr. Peters entered the service in July, 1918, obtained the rank of lieutenant at Fort Riley and was discharged a few months after the armistice was declared. The cause of death is said to have been uremia following an operation for acute appendicitis.

Dr. George W. Barrett of Denver died at St. Luke's hospital on July 27 of double pneumonia. Dr. Barrett was born in Buffalo, New York, in 1871. He was a graduate of the Medical Department of Tuft's College and for the past seventeen years had made his home in Colorado, coming to

Denver from Crook, Colorado. Dr. Barrett is survived by his wife, three sons and a daughter.

Dr. Eleanor Lawney of Denver died October 9 after an illness of many years.

Dr. Lawney was born in Massachusetts in 1853. She studied medicine in Philadelphia, completing her course and attaining her degree at the Gross Medical College in Denver, in 1887. She was the first woman to engage in the practice of medicine in Denver and attained a widespread reputation.

She was elected president of the state board of charities in 1903. For several years she was prominent in the affairs of the Woman's Club. She was secretary of the Hospital Saturday and Sunday Association for many years and was an ardent worker in behalf of the association.

Six years ago she retired from practice. For five years she had been confined to her bed.

WANTED.

Association or assistantship. With or without privilege of purchasing later. Denver location desired, but other large center considered. Applicant is an ethical, well educated and recommended physician of twenty years practice in Colorado. Thoroughly qualified in major surgery and diagnosis (including x-ray, cystoscopy, basal metabolism, etc.). Will follow either specialty or general practice, according to circumstances. Address editor.

Wanted—One or two offices and use of reception room, Denver. Applicant an established and highly qualified practitioner. (Ten years in Colorado). Address editor.

Physician desiring or wishing afternoon hours will kindly inquire at 550 Metropolitan Building.

For Sale—White fountain cuspidor splendid condition. Dr. G. P. Lingenfelter, 452 Metropolitan building, Denver.

Location Wanted—Graduate from Manhattan Eye, Ear, Nose and Throat Hospital, New York City, wants partnership association or location, Colorado; has had several years experience, two years postgraduate work. Best of references. O. T. Leftwich, M.D., 210 E. 64th St., New York City.

The University of Rome, Italy, will accept for the next scholastic year some foreigner doctors as voluntary assistants (without salary) in the different clinics, which are directed by illustrious professors.

The vacancies are as follows:

- Two in the surgical clinic.
- Two in the medical clinic.
- Two in the obstetrical clinic.
- Two in the dermosyphilopathic clinic.
- Two in the orthopedic clinic.

One in the mental and nervous diseases clinic.

For the contest it is necessary to send application to the president of the medical faculty of the University of Rome, and to accompany the same with a copy of the license.

Foreign doctors are also accepted to the numerous postgraduate courses.

The "Lega Italiana" Corso Umberto I, 101, Rome, Italy, will answer to all requests for further information.

Medical Women's International Association.

The second meeting of the Medical Women's International Association will be held at Geneva, Switzerland, from the fourth to the seventh of September, 1922. All members or prospective members are urged to be present. Each society of Medical Women in the world is invited to send one eligible delegate, and an additional delegate for every hundred members.

Interesting reports will be read by medical women from different countries, and the constitution of the organization will probably be revised in accordance with the provisions under which it was adopted.

Clinics in the different European cities may be visited en route. The attractions of travel in Europe are great this year. Practically all coun-

tries are accessible and the Passion Play will be on at Oberammergau during the entire summer.

The Medical Society of the Missouri Valley at St. Joseph.

The thirty-fifth annual meeting of this association will be held in St. Joseph, under the presidency of Dr. Paul E. Gardner, on September 21-22. The famous Hotel Robidoux will be headquarters.

One of the features of the second day will be a symposium on the "Early Recognition of Cancer", viz:

(a) Address, Dr. Fred J. Taussig, St. Louis, Mo., "How Far Can the Cancer Death Rate Be Decreased by Educating the Profession and the Laity?"

(b) "Superficial Cancers," Dr. E. H. Skinner, Kansas City, Mo.

(c) "Gastro-Intestinal Cancers," Dr. John M. Bell, St. Joseph, Mo.

(d) "Cancer of the Breast," Dr. Donald Macrea, Council Bluffs, Iowa.

(e) "Cancer of the Uterus," Dr. Palmer Findley, Omaha, Neb.

Complete program will be issued September 1.

Lay Magazine Runs Series of Articles by Medical Men on Child Welfare.

Although 80 percent of the babies in the United States are born with a chance to be healthy, statistics show that only 17 percent grow up with normal bodies! One million children in the United States today have tuberculosis; one million have defective hearing; five million have defective eyesight; and six million are suffering from malnutrition due, chiefly, to ignorance or neglect on the part of the mothers!

Because of these shocking conditions the *Delineator*—a magazine read by a million women—has persuaded Dr. L. Emmett Holt, Dr. Ralph Lobenstine, Dr. Henry L. K. Shaw, Dr. William Parker Lucus, Dr. Thomas W. Salmon and Dr. Owen R. Lovejoy to give to the average mother the benefit of their scientific knowledge. These well-known specialists are writing a series of articles that will appear in the *Delineator* every month for at least a year.

Notes From the Library

BOOK REVIEWS.

Nervous and Mental Diseases; edited by Peter Basso, M.D. The practical Medical Series, 1921. Chicago. The Year Book Publishers, 304 South Dearborn Street.

The quantitative meagerness of this volume is well compensated by the quality of its contents. The growing interest in nervous and mental diseases has resulted in an abundant literature on these subjects. Many of the contributions are of decided value. Others are perhaps of lesser value, but everything worthy of notice from the complicated subject of epidemic encephalitis, the treatment of neurosyphilis, new opinions of the existence of the "genuine" Broca's center, psychoanalysis, the rôle of infection in the causation of insanity down to the mechanism of ankle clonus is taken up. Every subject is presented briefly but clearly, and the reader never fails to get the point. The little volume is supplied with a very rich bibliography. It is a very useful volume in every medical man's library, particularly to one interested in the disease with which it deals, as a quick reference book. The only criticism, if any is to be made, is that Dr. Basso is too modest in not expressing his personal opinion on many a disputed subject in neuropsychiatry. Every one would surely read it with respect even though he might not always agree.

L. V. T.

Surgical and Mechanical Treatment of Peripheral Nerves; by Byron Stookey, A.M., M.D., Assistant Surgeon, New York Neurological Institute, with

a chapter on Nerve Degeneration and Regeneration by G. Carl Huber, M.D., Professor of Anatomy and Director of Anatomical Laboratories, University of Michigan. Cloth. Price, \$10.00 net. Pages, 273, with 225 illustrations. Philadelphia: W. B. Saunders Co., 1922.

The author justly points out that while the brain and spinal cord have received great attention, the peripheral nerves have been singularly neglected. He places the surgery of the peripheral nerves on the same level with that of the brain and spinal cord.

The embryology, gross and microscopic anatomy, as well as the physiology of the peripheral nerves are minutely described. There is an introductory chapter on the indications and contraindications for operations and when to operate. The technique of nerve surgery is most carefully and elaborately described. This is particularly true of the nerves most frequently affected, such as the facial, musculospiral, musculocutaneous, median, ulnar, etc. The nerves less frequently injured are also dealt with, but not in such detail as their more abused brethren. Nerve tumors and amputation neuromas and many other nerve affections are fully discussed. Many of the old methods of nerve surgery are frankly condemned, others bitterly criticized and the reasons therefor very plainly presented. Particular emphasis is laid on methods suitable to the treatment of nerve injuries. It is no exaggeration to state that this work is, perhaps, the most scientific treatise on the subject. Each chapter is supplemented by a complete bibliography. The chapter on nerve degeneration and regeneration, by G. Carl Huber, is a very valuable addition to his excellent book. Dr. Stookey is to be congratulated, not only for the thoroughness of his work, but for the attractive manner and readable way (a thing so seldom encountered in medical literature) in which he expresses his thoughts. The only regrettable thing about the work is that its price will undoubtedly prevent it from being read by many students as a reference book in the study of embryology and histology of the nervous system. L. V. T.

The Medical Clinics of North America. (Issued Serially, one every other month). Volume V., Number V., March, 1922. By Boston Internists. Octavo of 335 pages, with 62 illustrations. Per clinic year (July, 1921, to May, 1922). Paper, \$12.00 net; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

The Boston number of the Medical Clinics of North America opens with a contribution by Dr. Henry Christian on digitalis effects in chronic cardiac cases with regular rhythm in contrast to auricular fibrillation, which is presented in a very thorough and scholarly manner. This is followed by a clinic on Angina Pectoris by Dr. William H. Robey. Diabetes, especially death following sudden changes in diet, together with an interesting case of diabetes in a ten year old boy, is presented by a master on this subject, Dr. Elliott P. Joslin. Chronic indigestion in early childhood is dealt with by Dr. John Lovett Morse. An interesting case of acute blood loss due to pathologic hemorrhage, is presented by Dr. George R. Minot. A contribution by Dr. Silas C. Sturgis, which is of timely interest, deals with the clinical study of myxedema with observations of the basal metabolism. The effect of breech extraction upon the central nervous system of the fetus, receives a thorough consideration by Dr. Bronson Crothers. A praiseworthy clinic on cardiovascular syphilis by Dr. William D. Reid and another on syphilis by Dr. Channing Frothingham deserve commendation. Common sense in the interpretation of hypertension by Dr. James P. O'Hare is dealt with in a practical manner. Diagnosis and treatment of peptic ulcer, based upon clinical experience and experimental observations on patients, is the subject selected by Dr. Charles W. McClure. Two rather unusual and interesting respiratory conditions are presented by Dr. Lewis Webb Hill. A

clinic of Dr. Stanley Cobb consists of an interesting case of epilepsy with a general discussion of the pathology. An up-to-date study of the bile pigments by means of the duodenal tube in a case of paroxysmal hemoglobinuria is presented by Dr. Chester M. Jones. Types of purpura in infants and children are considered by Dr. Thomas E. Buckman. The closing clinic of this valuable number, by Drs. Louis E. Viko and Paul D. White, in regard to observations on important disorders of the heart beat, is presented in a very praiseworthy manner. J. L. M.

New and Nonofficial Remedies, 1922. containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1922. Cloth. Price, postpaid, \$1.50. Pp. 417+XXXIV. Chicago: American Medical Association, 1922.

New and Nonofficial Remedies is the publication of the Council on Pharmacy and Chemistry through which this body annually presents the American medical profession with disinterested, critical information about the proprietary medicines which are offered to the profession, and which the Council deemed worthy of recognition. In addition to the descriptions of proprietary preparations, the book contains descriptions of those nonofficial remedies which the Council deemed deserving of consideration by the profession.

To be admitted to New and Nonofficial Remedies it is required that the quantitative composition of the article be declared, that the therapeutic claims made in marketing the article must be truthful and that the preparation has, or gives promise of having, therapeutic value.

Physicians who wish to know why a given proprietary is not described in New and Nonofficial Remedies will find the References to Proprietary and Unofficial Articles not found in N. N. R. of much value. In this chapter (in the back of the book) are given references to published articles dealing with preparations which have not been accepted. These include references to the Reports of the Council, to Reports of the A. M. A. Chemical Laboratory and to articles which have appeared in The Journal of the American Medical Association.

New and Nonofficial Remedies should be in the hands of all physicians who prescribe drugs. The book contains information about the newer materia medica which cannot be found in any other publication.

The book will be sent postpaid by the American Medical Association, 535 North Dearborn Street, Chicago, on receipt of one dollar and fifty cents.

Syphilitic Phthisis. Under this heading Barbosa reports a case of an acute infectious process in the right lung of a man of 47. The acute symptoms yielded to the ordinary measures but the symptoms of a pulmonary lesion persisted, and by exclusion he diagnosed syphilitic phthisis. This assumption was confirmed by the prompt benefit from specific treatment. It is impossible to differentiate these cases by the physical findings. In some recent cases of asthma, specific treatment resulted in the cure of the long rebellious asthma. This group included some cases of asthma in infants. The results in these cases suggest that the benefit from iodid in asthma is probably due to the unsuspected syphilis element in the clinical picture. The spirochetes getting into the circulation might set up anaphylaxis like any other parenterally incorporated protein. In his cases of syphilitic disease of the lungs, no other organs seemed to be affected. (J. Barbosa, Brazil Medico, Rio de Janeiro, December 31, 1921; Journal A. M. A., March 25, 1922.) Reprint from "Abstracts From Recent Medical and Public Health Papers, Issued by the Division of Venereal Diseases, U. S. Public Health Service."

Colorado Medicine

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Editorial Comment

DR. ALEXANDER RIGHTER CRAIG.

Shortly before the time of make-up of this issue of Colorado Medicine came the shocking notice of the death, on September 2nd, of Dr. Alexander Craig, veteran secretary of the American Medical Association.

Every member of every State Medical Society of this nation cannot but stand with head bowed in sorrow.

Every member of the Colorado State Medical Society who had the privilege of meeting Dr. Craig at Pueblo in 1921 will recall his genial personality, friendly spirit and modesty withal.

Every State Society secretary and every national delegate will at once picture a capable, efficient and wise executive, whose meticulous attention to the many details in the management of a mammoth association has been a source of wonder to them all.

The value of Dr. Craig's untiring efforts for the good of organized medicine is extremely great, and that widely known and loved signature, "A. R. Craig, Secretary", is indelibly written in the history of the American Medical Association.*

WHERE IS BLUCHER?

When the first rumblings of preparation for the attack on animal experimentation were heard Colorado physicians had their ears to the ground. As the bustle and clanking of arms increased, it developed that although the attack was directed against the medical profession, in reality it would go far towards accomplishing the downfall of public health and sanitation, as well as be destructive to the livestock industry of the state. There was no one to take up arms against the marauders but the small band of physicians in the state, for only they appreciated the enormity of the danger; so preparations for defense were begun.

Couched in language misleading and untrue, filled with age-old accounts of cruelty to dogs based on isolated occurrences of a century ago,

*It is intended that a biographical sketch of Dr. Craig, which could not be prepared for this issue, shall appear in the October number of Colorado Medicine.—Ed.

before the age of anesthetics, propaganda was distributed by the Antivivisection Society which has such sentimental appeal to people in the every-day walks of life, both men and women, that, if left unchallenged and not disproven, it might very well accomplish a substantial victory for this cult when their initiated bill is voted upon in the fall.

Inasmuch, however, as the harm was to be the public's, it was felt that this was not and should not by rights be a doctors' fight except as doctors were citizens with a citizen's interest in public welfare; and it was found, on sounding out some of the thinking influential laymen, that they had only to be informed in order to quickly grasp the significance of the bill and to lend their active efforts in working for its defeat. This led to the organization of the Colorado Association for the Protection of Public Health, whose prime object is to conduct a campaign of education of the public on all the aspects of animal experimentation, showing both the results in saving human life and the way in which experimental animals are cared for. This association is composed largely of laymen; and that is as it should be.

Yet it remains a stern fact that the doctors must bear the brunt of the campaign, must be largely concerned in its direction and furnish all the arguments; that without them there will be no organized opposition. Consequently the Colorado State Medical Society as a body has taken its hand in the game, and through its officers and constituent societies is bending its efforts to assist, both by individual work of its members and by organized activities.

But—

It is the complaint of many, and is perhaps a just one, that the Colorado society—a state institution—should not be allowed to work unaided against a national organization which is eternally harassing the whole medical profession of the United States, just because that organization happens to have chosen Colorado as a likely site for an entering wedge to the great body of states. In other words, this is one battlefield in a war against medical science which encompasses all the states, and it would seem unjust that when the entire forces of the enemy are directed against a small contingent, the local guard should go without reinforcements. Yet such has been the case so far. Colorado has had to organize its defense unaided; it has had to send hither and yon for

literature, facts and suggestions from which it could work out its own plan of action and its propaganda. It believes that it has provided educative literature best suited to local conditions and which will bring home to the voter in a convincing manner the absurdity and unfairness of what is appropriately styled Colorado's Death Bill. Its efforts may in some respects have been in error—it may have said and done some things which under the paternal advice and direction of experienced organizers would have been avoided; if this be true, it should be noted in extenuation of the impetuosity of so youthful an organization that no parent has come to its aid with constructive criticism and practical suggestions. It is no time for destructive criticisms; we have done our best; if helpful suggestions and practical aid should be offered us, they will be welcomed and appreciated.

When Wellington stood upon Waterloo and saw his army holding out to the point of exhaustion, waiting for the reinforcements which were promised and expected, he cried out at last in impatience, "Oh! for Blucher or night!"

A state organization with limited funds is sturdily fighting a national organization with apparently ample funds and experienced generals. It has sought and expected timely aid which has not yet arrived. It does not want night, it wants to continue the battle, but—Where is Blucher?

CONSTITUENT SOCIETIES REPORT ACTION AGAINST ANTIVIVISECTION BILL.

In considering the part which can be played by the component societies of the Colorado State Medical Society in our campaign it should be borne in mind that many of them are composed of only a small number of members, in some instances as few as eight, and that even then their territory is large and their places of residence scattered, so that they are to be commended even if they do no more than to give their individual support to the plans of the state organization. The following reports, which are made at the Editor's solicitation, will show that already the majority of our societies are getting to work in an effective way.

It would seem that there is no good reason why, by election time, the voters of Colorado should not be generally informed as to the true status of the Colorado Death Bill.

The reports are tersely quoted:

Boulder County.

I can give you a brief summary of the action of the Boulder County Medical Society in regard to the campaign against the Antivivisection bill.

Several months ago a committee was appointed, consisting of Dr. M. H. Reese, Department of Physiology, University of Colorado; Mr. Ivan Wallin, Department of Anatomy, University of Colorado; Dr. J. H. Barber, Dr. Paul R. Farrington, to work in organizing our campaign.

Considerable newspaper publicity has been given by various local authorities, on the mat-

ter. We have complete co-operation on the part of the Daily Camera and the Boulder News-Herald, our two daily papers.

A meeting of the Medical Society, each to bring one guest from outside the profession, to perfect an organization comparable to the Denver organization, to get under the campaign here more thoroughly and more efficiently, has been arranged for the near future.

WALTER K. REED, Secretary.

Chaffee County.

Chaffee County Medical Society has done nothing towards organizing a campaign against the Antivivisection bill. We discussed the matter briefly and decided that more could be done by just quietly suggesting to our friends here and there that they vote against the bill. We regard an active campaign as inadvisable.

G. W. LARIMER, Secretary.

Delta County.

We have not had any County Society meetings since your letter arrived, but soon will have and I will take the matter up with the membership, in reference to a donation. Dr. A. C. McClanahan is publicity agent for the three counties on the Western Slope, and we have had an article touching on the subject in some of the papers most every week and will keep the matter continually before the public until election time. When it comes nearly election time, we plan to use the moving pictures for three or four minute talks, and also at the different club meetings held at that time.

HARRY A. SMITH.

Denver County.

The Medical Society of the City and County of Denver convened twice in meetings held to discuss the matter of the initiated Antivivisection bill.

At the first meeting, a resolution was passed condemning the Antivivisection bill, and upholding animal research.

At the second meeting, a resolution was passed that the Medical Society of the City and County of Denver join the Colorado Association for the Protection of Public Health.

C. F. HEGNER, Secretary.

Fremont County.

The Fremont County Medical Society has as yet taken no definite action relative to the Antivivisection bill, but the members are doing individual missionary work.

We attempted to hold a special meeting, but several doctors were away on their vacations and not enough were present to accomplish anything.

At our regular September meeting we expect to make a special feature of this matter and begin an aggressive campaign. There seems to be but little sentiment in favor of the bill in this locality.

OTIS ORENDORFF, Secretary.

Kit Carson County.

Kit Carson County Medical Society met in regular session yesterday and voted a contribution of \$15.00 to the campaign fund to help fight the Antivivisection bill. Due to the fact of a scattered population in our county, it was decided best for each doctor to enlighten his respective patients of such bill to be voted on and reasons for voting no. The members of our society request that they be supplied with plenty of literature to be circulated in each community.

U. L. McBRIDE, Secretary.

Las Animas County.

We had a meeting and elected Dr. G. W. Robinson chairman and expect to get the largest building available and have an outside man to address the meeting, as we deem it better to have someone other than a physician for this purpose. Also expect to have ministers speak to their congregations, and in October take the matter up with Lions and Rotarians.

L. T. RICHIE, Secretary.

Mesa County.

We have a publicity secretary who is responsible for newspaper and other publicity. Members of the society have made talks at Lions Club, Rotary Club, etc. Dr. Whitman of Colorado University addressed the public on the subject at a community conference meeting.

E. H. MUNRO, Secretary.

Morgan County.

Our society has not yet met to act against the Antivivisection bill, but we expect to get together soon, and our plan is to select the most pertinent facts from the literature at hand and have them run in all our county newspapers before election, the doctors of the county footing the bills and sponsoring the facts.

N. D. WELLS, Secretary.

Northeast Colorado.

I am sorry to say that our society has done nothing. We have had no meeting since June, but possibly at our next, which will be early in September, something may be started.

J. H. BUSH, Secretary.

Northwestern Colorado.

I have a lot of literature which I expect to hand out to the different doctors at our meeting which we expect to hold next month. I tried to get a meeting Aug. 16, but very few came, so am going to try again next month, at which time we will take up the matter and give it as much publicity as we can, besides talking and distributing the pamphlets sent me from the Association of Public Health.

E. L. MORROW, Secretary.

Pueblo County.

The following is excerpted from the Pueblo Star Journal of August 8:

An organization to protect public health and conduct a campaign against the passage of the

Antivivisection bill to be voted upon in Colorado at the November election is to be formed in Pueblo following a vote taken at a meeting and Luncheon of the Pueblo County Medical Association and a number of laymen guests at the Commerce Club rooms at noon Tuesday. The vote was taken with every person present participating after F. S. Hoag had suggested that the physicians were better fitted to combat the proposed legislative measure than any other body of citizenry.

Dr. F. E. Wallace said that there was in Denver a state organization, "The Association for the Protection of Public Health," and urged that a local branch of this organization be formed which would undertake to defeat the proposed bill in Pueblo. Dr. Corwin had at first suggested a committee of three, but after Dr. Wallace had made his proposal the committee was increased to five and the plan of combating the proposed bill will be undertaken.

Practically every physician in Pueblo attended the meeting Tuesday and many of them spoke, all condemning the proposed measure as being capable of working immeasurable harm to the human family and retarding the advancement of medical and surgical science.

Physicians in discussing vivisection of animals for scientific and experimental purposes explained in detail how the work was done in a humane manner and also the great benefits and development of medical science due solely to experimental work on animals.

Dr. W. F. Singer acted as chairman of the meeting. Many of the physicians present had invited laymen guests and the meeting was largely attended. Among the speakers were Dr. Crum Epler, Dr. R. W. Corwin, Dr. W. F. Singer, Dr. A. T. Stoddard, Dr. A. N. Carroll, Dr. Frederick Pierce, Dr. W. T. H. Baker, Dr. W. E. Buck, F. E. Wallace, G. H. Nuckolls, W. L. Wilder, F. S. Hoag and others.

Weld County.

We have not had very good success in getting the physicians enthusiastic about this campaign.

A special meeting was called which about four physicians attended. However, they pledged to give talks to the Lions Club, Rotarians, Kiwanis, etc., etc.

No special plans for a campaign were formulated, but I think that every physician here will do his utmost to overcome the anti's bill.

THOS. E. ATKINSON, Secretary.

STATE BOARD OF HEALTH NOTES.

"His Acts Being Seven Ages."

The sixth age:

"The sixth age shifts
Into the lean and slippered pantaloons;
With spectacles on nose and pouch on side;
His youthful hose well saved a world too wide
For his shrunk shank; and his big manly voice,
Turning again towards childish treble, pipes
And whistles in his sound."

The old man is apt to be bothered by bladder

troubles, enlarged prostate, or maybe a hang-over from youthful indiscretions, and must be made as comfortable as possible. His diet is now to be confined to the most easily digestible foods.

He is very likely to be declared a nuisance by his children, and if he has no money he is sure to be called on. If, however, he holds onto the purse strings and has not been foolish enough, like old King Lear, to divide his kingdom too soon, he may remain master of the situation.

We now have homes for the aged where they may pass the rest of their lives, which is some improvement over the custom of the savage, who is said to place his old people out where the wild beasts may devour them. But the sanitarian who has essayed to protect the "genus homo" from before birth to the final disposition of the body, must still have charge of the situation.

The chilly old man must still have his fresh air, even if served to him by surreptitious means, where he will not allow a window to be opened, as I found in a certain home for old people. I advised a fan in a pipe in the ceiling leading to and through the roof. This will create a draft not noticeable to the old man, and clean out the room of the various smells and tobacco smoke. Though like Jiggs he may be a fiend for corned beef and cabbage, yet someone, maybe not quite so strenuous as Maggie, must stand guard over his appetite.

As the appetite may crave more than the stomach may be able to take care of, a diet kitchen is a very useful piece of equipment to provide nourishing yet "filling" food.

For the old person's mind, which is now a care of the sanitarian, I would advise the reading of Cicero's "The Blessings of Old Age." He says: "Now the harvest of the old age, as I have often said, is the recollection and abundance of blessings previously secured. In truth everything that happens agreeably to nature is to be reckoned among blessings. What, however, is so agreeable to nature as for an old man to die; which even is the lot of the young man, though nature opposes and resists?"

The old man is apt to be dirty—habits like children. If his whiskers are combed, he thinks he is sanitary enough to pass inspection. His vegetarian diet should not be so rigid as to cause him to emulate the first vegetarian of whom history gives an account. He ate grass like an ox and had neither a hair cut nor his nails manicured.

Then the old man is apt to be a little "nutty," which will throw considerable strain on the relatives, either or both, mental and financial. "For a man to have reached the age of sixty or upwards without the occurrence of an alienation of any kind, is a distinct compliment to his ancestral protoplasm and to a less extent to his own moral and hygienic habits." (Berkley.)

But where, oh where, is grandma all this time? Flapping with the flappers? I'll say she is. No more chimney corners for her. Granny sets the pace for 'em all. Well, I'm for her strong; let her go and maybe Selection will

change her mind about this seventy year business and conclude that perhaps the individual is of some use to the race after that age.

This theory of regarding human life as limited, not because the living substance is incapable of continued activity beyond a certain number of years but because the duration of individual existence beyond a certain age is of no advantage to the species, is liable to be put in the discard by the awakening of the "female of the species" to her voting, bossing, jury serving, fighting, inheriting rights as she sees them.

Now his carburetor is liable to flood—pneumonia; he develops various and sundry squeaks—arthritis; steering becomes difficult and uncertain; his klaxon is weak; spark is feeble; top is gone; body scarred and full of dents—no pep generally. Let's junk him and get a 1923 model.

But soft, if he is a multimillionaire he might try the virtues of an interstitial gland transplantation and the one thousand candle power smile of a Polish actress.

J. W. M.

EVERY MEMBER OF THE COLORADO STATE MEDICAL SOCIETY SHOULD FEEL PROUD TO HAVE HIS NAME ON THE SUBSCRIPTION LIST FOR THE ANIMAL EXPERIMENTATION FUND.

THE CONSISTENT ANTIVIVISECTIONIST.

What It Cannot Do.

It cannot swat the fly.
It cannot slap a mosquito.
It cannot eat meat nor fish.
It cannot wear leather shoes.
It cannot wear silk.
It cannot kill predatory animals nor poisonous snakes.
It cannot ride in an automobile with leather cushions nor sit in a leather chair.
It cannot beat a drum.
It cannot take advantage of modern sanitation.

For these things depend on the taking of dumb animal life.

What It Can Do.

It can slap its child.
It can beat its wife or stick its husband with a hatpin.
It can let its child choke with diphtheria.
It can allow humanity in general to suffer and die.
It can murder.
It can see others unknowingly eat tuberculous meat.
It can die of malaria, yellow fever, syphilis, tuberculosis, bubonic plague, typhoid fever, smallpox, pellagra, cancer.

For these things would not injure a dumb animal.

I would rather do all the first, even to beating a drum, than to do any of the last. Would you?

SIT DOWN NOW. MAKE OUT YOUR CHECK TO A. C. FOSTER, TREASURER, PUT IT IN AN ENVELOPE ADDRESSED TO DR. C. T. BURNETT, SECRETARY, 517 IMPERIAL BUILDING, DENVER, STAMP IT, AND DROP IT IN THE MAIL BOX.

Original Articles

A CONSIDERATION OF THE MIGRAINE CHARACTER.

J. ARTHUR BUCHANAN, M.D., M.S., PUEBLO.
Section on Medicine, Pueblo Clinic.

Migraine is one of the most frequently observed characters in man. Its manifestations were first fairly well systematized by Galen, who introduced the term "Hemicrania" to signify the site of occurrence of the most common phenomenon of the character. This introduction was unfortunate as subsequent observations have shown the significance of the term to be rather limited. Hemicrania has been abridged to migraine by the French; to megrim by the English; and to migräne by the Germans. The most frequent usage is migraine. Its popular synonym is sick headache.

Paroxysms of pain, which recur in more or less irregular cycles, are the dominant features of the migraine character. The pain may be unilateral, or bilateral when located in the cranium. In rare instances, the other somatic disturbances of a cycle may be associated with abdominal pain of a certain type.

The first evidence of the migraine character may occur in infancy as cyclic vomiting¹. In the presence of cyclic vomiting in an infant or young child, the prediction can be made with a high degree of assurance that the child will be subject to migraine cycles later in life. The first painful seizure may occur in the fourth to fifth year, but as a rule it occurs in the twelfth to the twentieth year, and very rarely after the twenty-fifth year of life. In cases where the usual manifestations of migraine begin after the twenty-fifth year, every search should be made to determine the presence of an organic lesion of the central nervous system. If the search fails to determine the cause of the newly occurring symptoms, the patient should be re-examined frequently.

The radicals of the migraine character may be spoken of as cephalic, gastrointestinal, and general.

Cephalic Type.

The cephalic radical of migraine may be divided into the cranial and ophthalmic types. The pain of the cranial type may be in one or both sides of the cranium; usually temporal or frontal, but may be vertical or occipital; occurring always in the same location, or varying in location in different cycles. The pain begins gradually, and by crescendo increases to a fastigium, which may be intolerable. The degree of severity of pain varies from very mild to very severe, and the intensity may vary in the same patient in different attacks. The pain is described as boring, throbbing, splitting, or aching in character. In some cases the pain is preceded by a visual aura, which disappears usually as the pain begins. The visual warnings are particularly found in the patients whose

attacks begin during the day, whereas the more common type of migraine cycle begins early in the morning. The sufferer awakens with a sense of ill-being, which shortly is recognized as the warning of a day of distress. The pain may last for an hour; three hours; a day; and in extreme cases for three or four days. In some cases the pain is relieved by a sleep; in others by vomiting; while in others the pain is unrelieved by any of the more commonly used analgesics. In such cases codeine or morphine sulphate has to be resorted to, although this is always inadvisable. In some cases the patient passes into a state of constant pain known as status migrainus. In 1920, a man, aged thirty-five, came under my observation, who had had recurring cycles of migraine for many years. The cycles became increasingly more frequent until the patient was in continuous pain. The pain was located in both frontal regions of the cranium. After several weeks of intense suffering, the patient became despondent and committed suicide. At autopsy a careful inspection of the central nervous system showed no gross abnormalities. The subsequent microscopic investigations revealed no pathology.

The ophthalmic type of migraine is fairly common, and is frequently mistaken for some orbital condition. The pain may be located in one or both eyeballs, or behind the globe, and has the same characteristics as that occurring in the cranial type. In this type as in the cranial type an attack is frequently preceded by the development of visual auras, which are described as bright lights, zig-zag lines, blind spots, rotating bodies, and many other shapes. The auras are irregular in shape; their outlines defective or broken on one side. The borders of the auras may be broad and composed of changing prismatic colors. The aura passes off in from five to thirty minutes.

The pains of the ophthalmic type of migraine may be followed by a period of paralysis. In these cases the pain is sharply localized; its duration is variable, but usually brief. The pain is ordinarily terminated by an attack of vomiting, which may be regarded as a sort of crisis, as it usually brings sudden and prompt relief. Upon the disappearance of the pain and vomiting the paralysis appears. The paralysis is confined usually to the oculomotor, and is most frequently total and complete, producing both an external and an internal ophthalmoplegia. The fourth or sixth cranial nerves may be involved rarely. The paralysis may last a few days to several months. The ophthalmic type of migraine may change to the ophthalmoplegic type.

Quite recently I examined a patient, female, aged thirty-eight, who had had attacks of ophthalmic migraine since childhood. The pain lasted for twelve hours. The pain was very severe; invariably located in the right eyeball; deep boring in character; and at times associated with nausea and vomiting. Between attacks the patient felt well. The attacks occurred regularly every fourteenth day. In her early

life the pain was so severe in some attacks that she became unconscious. The unconscious attacks were no doubt epileptic in character, although there was no history of convulsive movements during the period of unconsciousness. The patient had consulted eye doctors from one end of the country to the other, and of course wore glasses without relief. The doctor who is fortunate enough to change her glasses around the forty-fifth year will receive credit for fitting the proper glasses. Her mother had been subject to severe headaches with vomiting; one sister was similarly constituted; while her father, and five sisters and brothers were free of such attacks.

Gastrointestinal Manifestations.

The gastrointestinal symptoms usually manifested are nausea and vomiting. The vomiting is usually followed by regurgitation of bile, or even the first vomitus may consist of bile or bile-stained material. The attacks are usually spoken of as bilious in such persons, and bilious attacks are practically always a part of migraine, and not a part of something more serious. In rare cases there may be diarrhea during the attacks, but it is the usual thing in women to find migraine associated with habitual constipation, and the belief is quite prevalent that if the constipation might be cured, the migraine would cease.

The gastrointestinal symptoms are frequently interpreted as representing some type of abdominal lesion. As a consequence the patient is subjected to a cholecystectomy or gastroenterotomy, or biliary drainage, depending upon the fancies and acquirements of the physician consulted. No benefit follows the procedure. In many cases the patient is made worse. The attacks of the cranial pain of migraine are discovered after the operation or drainage treatment. Patients who complain of recurring attacks of nausea and vomiting should always be questioned concerning headaches. In the presence of recurring headaches, abdominal operations should only be undertaken when the objective and subjective symptoms are compatible.

Living², in his study of the phenomena of the migraine character, described a few cases which presented abdominal crises. The pain of the crisis was located in the epigastrium. Similar cases have been observed by Schmidt³, and seven cases were collected in 1921 by myself from the files of the Mayo Clinic⁴. The cases presented the typical expressions of the migraine character, and in addition to the cephalic radical suffered from recurring attacks of abdominal pain. Five of them had been subjected to abdominal exploration, and the two others were diagnosed by a process of careful exclusion.

General Symptoms.

The general manifestations of the migraine character are shown by a sensation of all gone-ness; general inability to carry on; a sense of feeling green; marked weakness and prostration; and coldness and chilliness. There may be numbness in an arm or extremity or perhaps more widely spread. In some instances, there

may be a loss of sensation in a portion of the body, or even a temporary paralysis, as a hemiplegia. In addition to recurring paralysis of the third, fourth and sixth cranial nerves, rarely the seventh nerve may be involved. In some instances a recurring paralysis with migraine becomes a permanent paralysis. The motor side of the symptomatology is, however, usually not a prominent part of the picture.

Importance of Family History.

The most important factor in the classification of the migraine character is the family history. For many years migraine has been suspected of being hereditary, at least in the majority of cases, but its transmission between generations in accordance with the laws of Mendel⁵ were not worked out until observations by myself⁶ in the Mayo Clinic showed clearly that migraine is the physical, or perhaps chemical, or both, expression of an underlying peculiarity of the human economy which is transmitted between generations in accordance with the laws which invariably govern the transmission by the germ plasm of hereditary characters. The study made on one hundred and twenty-seven families, consisted of one hundred and ninety-eight children with migraine and six hundred and ten without migraine. Migraine is segregated in exactly the same manner as occurs in the second filial generation in plants, animals, and fowls in which an hereditary character has been demonstrated. In other words, if a person with migraine is married to a person with the character "without migraine", and four children result from this union, one child has migraine, three are without migraine, and of these, one is pure without migraine, and the other two breed a certain number of migrainous individuals when crossed with a pure without migraine; and when crossed by a similarly mixed with migraine, breed fifty percent of with migraine, and fifty percent without migraine. The pure type is termed homozygous, and the mixed form is termed heterozygous. On account of the absence of evidence of migraine in the heterozygous individual, migraine has been considered hereditary on a percentage basis. When dealing with persons who present all or a part of the phenomena of the migraine character, but whose immediate parentage is free of the condition, inquiry must be directed to the grandparents, aunts, uncles, sisters and brothers in order to secure classifying data. It is to be remembered that in small families a character may be transmitted by heterozygotes for many generations without its appearing, until a large family of the strain occurs when the character re-appears. The study of selected large families is necessary in order to demonstrate all the possibilities of the transmission of an hereditary character. Families of less than four children, and those where positive data concerning all the parents and the children are not available are valueless.

Biologic Nature.

The demonstration of migraine as an hereditary character takes it out of the category of

diseases, and places it in the list of distinctive biologic characters of man. From the method of transmission of hereditary characters, namely as an integral part of the stuff from which the particular strain of man originates, the idea of an hereditary condition being a disease becomes unreasonable. All hereditary characters in plants, animals and fowls are unquestionably considered expressions of normal types. It is, therefore, very reasonable to contend that all conditions occurring in man which can be shown to follow the laws which govern the transmission of hereditary characters, become a physiologic part of the make-up of man. No matter how much a character may interfere with the social and economic ambitions of the person of whom it is a part, the character is not to be looked on as an expression of a pathologic process. The transmission of migraine between generations in accordance with the laws of Mendel can be demonstrated by anyone who studies family histories of persons presenting the character.

Associated and Related Conditions.

From the very earliest period of the history of migraine, it has been considered a casual agent in the production of a large variety of abnormal, non-hereditary conditions in man. This is purely an assumption. No evidence has been advanced to demonstrate that unit factors of heredity on which physical features depend are responsible for more than specific characters. The specific character may be varied in its manifestations, and for that reason a careful survey must be made before deciding what conditions in man are associated with migraine, and what are a part of the protean manifestations of the character.

During the period of my residence on the Mayo Foundation, in a study of the associated and related conditions of migraine, I reviewed several thousand family and personal histories. In the study essential or idiopathic epilepsy was the one condition found to be related to migraine in striking percentages⁷. When essential epilepsy was considered in the familial study of migraine, as simply a manifestation of the same unit character, the two conditions were transmitted as a single entity in conformity with the mendelian laws⁸. A reverse study in which epilepsy was considered as expressive of an hereditary character, presented data which were conformable with the mendelian laws only when migraine was considered as a manifestation of the same biologic peculiarities of the strain of protoplasm of the families investigated. Migraine and essential epilepsy were concluded to be related and not associated conditions. The so-called neuropathies were found to have no definite relationship to the production of migraine and essential epilepsy. A family could have the so-called nervous equilibrium for many centuries and unless the migraine-epilepsy unit factor was introduced into the germ plasm of the family, migraine-epilepsy would never appear. A person with the migraine-epilepsy character is, however, susceptible to any of the known pathologic processes of man.

Period of Transformation.

The migraine cycles usually terminate about the forty-fifth to fiftieth year, but rarely may continue to occur until a more advanced age. The history of patients during the years when migraine is subsiding is of interest and of importance, as the symptoms of this period are frequently interpreted as a part of something more malign. At this time, the cycles may be more frequent; more severe; or they may gradually disappear without the introduction of new symptoms. The most common symptom that causes distress is dizziness, which may have been present to a lesser extent for many years. The dizziness may be marked, and often necessitates the patient to spend most of the time in a sitting or lying position. It gradually disappears with or without treatment. Of equal importance is the occurrence of a type of trigeminal neuralgia as a form of transforming migraine. This pain is present off and on, and may last a day or so; is rather severe, but not so severe as in true tic doloieux. The attacks are not brought on by the factors which ordinarily produce a seizure of pain in tic doloieux. This type of neuralgia is of importance, as relief is not obtained by resection of the Gasserian ganglion, nor by alcoholic injections, although some patients have been subjected to these treatments through a mistaken diagnosis. Every patient who presents symptoms of trigeminal neuralgia should be carefully investigated concerning a history of migraine and all evidence carefully weighed before a final conclusion is made.

Treatment.

The treatment to which the migraine sufferer is subjected adds nothing to his or her comfort. There is no cure. In fact, any discussion of a cure for a biologic character of man, plants, animals, or fowls, is absurd. It is just as rational to try to cure migraine by surgery, drugs, or diet, as it would be to try to change a person in blood group IV to blood group III by some therapeutic measure. Migraine runs its normal life cycle regardless of all the treatments and operations that have ever been tried. In 1920, I reviewed the histories of the 1,300 patients who registered at the Mayo Clinic in 1919 and who were classified under the heading of migraine. About seventy-five percent of these patients had had operations varying in magnitude from cerebral decompression and colectomy to circumcision of the clitoris. Many were relieved or improved for about three months, and then the trouble returned with increased intensity or as prior to operation. It is to be remembered that migraine, like essential epilepsy, is improved temporarily by most any type of operation or treatment, and as a rule it disappears during the course of acute infections, and in some instances during pregnancy. There are more drugs recommended to cure migraine than an average minded physician could ever remember. Their uselessness is equalled by their polixity. Diets are as popular as operations, and they are all equally useless.

The advice of Hippocrates to physicians to do

no harm, if they could do no good, has been frequently forgotten in the management of patients presenting the migraine character. Operations are at least potentially harmful procedures, and in some instances actually harmful when carried out in the migrainous person. The idea is so prevalent in the minds of people as well as physicians, that physicians are able to cure all conditions, that the physician has great reluctance to tell a patient that he or she is incurable, or at best only to be relieved temporarily. Instead he prefers to promise a cure by some method. The cure does not materialize when applied to migraine. Naturally not many physicians are willing to write articles stating that there is a condition which is incurable in their hands. The economic purpose of the many articles dealing with cures stands in the way of the patients receiving justice in literature.

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MOTION STUDY IN SURGERY*

CHARLES S. ELDER, M.D., DENVER.

It is not the purpose of this paper to incite surgeons to greater speed in the performance of operations. In surgery, above all other arts, that haste which makes waste should be shunned, for the material upon which the surgeon works is more delicate and more precious than any other fabric touched by a workman's hand. Rapidity of action, then, is neither advocated nor desired, but a reduction of movements to the fewest and the shortest will result in less injury to tissues, less time consumed in operation and therefore less shock.

It might seem that this attempt to encourage, rather than to teach, motion study would promise to achieve the singular distinction of being the least important thing a writer on surgery could do. For every surgical operation is composed of movements, and to argue about the admission of any movement into a complex performance or its rejection therefrom might resemble nothing so much as a war of words. Upon this question, however, it may be well to take testimony.

Sir Berkley Moynihan, discussing the treatment of gastric ulcer before the British Medical

Association in June, 1920, presented an argument for partial gastrectomy. He thought it necessary to add the caution that speed was necessary in the performance of the operation; speed which could be attained only by long practice; speed which is the child of experience, not the parent of disaster. Certainly there is no one who can tell more clearly than Moynihan how to do a surgical operation. But after he has done his best in presenting his method of operating, there is yet an important acquisition which even his accurate and glowing talent in the use of words cannot convey. Before it the tongue is dumb and the pen impotent. Does not this seem one of the mysteries of surgery? What is this which defies description, this vague something which long practice alone contributes to one's abilities?

In the performance of any unfamiliar task several attempts are commonly made before the movement or device is found which accomplishes the desired purpose. Thereafter on repetition of the operation all unsuccessful movements are excluded and only the effectual maneuvers retained. The greater the number of performances the more firmly the successful coordination of movement becomes established and the greater the facility with which it is carried out until at length it becomes habitual. Its exercise, then, requires no mental concentration. The process cannot be described because it is not the object of attention.

Ask a surgeon how he ties a knot or a clerk how he wraps a bundle and neither will be able to answer. Each starts a series of movements which follow in order without conscious effort. Attention, it may be marvelled at, makes movement awkward and uncertain. It is only the unconscious operations of habit which are easy, accurate and graceful. If anyone particularly anxious to present a good appearance walks across a room filled with guests he is quite likely to meet with some humiliation. Someone has put this thought to measure:

"The centipede was happy quite

Until the toad in fun

Said 'pray, which leg comes after which

When you begin to run?'

This wrought his mind to such a pitch

He lay distracted in a ditch

Uncertain how to run."

The physiologic provision for habit formation is a time and thought saver. Having acquired an habitual set of movements the surgeon can devote his whole mind to the larger purposes of the operation or to clinical talk, the details taking care of themselves. This is an enormous advantage and Moynihan is not alone in advertising to it. Surgical writings abound with such allusions as his. One more seems worth reciting. Whether a cholecystectomy or a cholecystostomy should be done, depends, says Deaver, "upon the man behind the gun." Now it is surely possible to define the advantages of each operation and to describe the method of doing it. If one undertakes to do either operation without this information he is clearly incapable of doing even the easier. The question in Dea-

*Read before the Medical Society of the City and County of Denver, March 21, 1922.

ver's mind might have been, "Has the operator sufficient motor education to justify him in attempting the more difficult operation?"

The conclusion is that the apt performance of a surgical operation demands the acquisition of a set of movements which are easy, orderly, effectual and unconscious. The faculty which enables one to satisfy this demand has also an evil attribute. It is the stern and persistent opponent of progress. Repetition makes perfect, but it perfects only in that which is repeated. When a process becomes so well established that it is smoothly discharged it is thereafter the shortest and easiest route to accomplishment. It is altogether probable that it does not represent the best method of doing the required work, but it is certain to be the eligible method to the one who has become accustomed to it. It requires no thought and thought is always troublesome. Writers on surgery accept this fact without remonstrance. They commonly offer the consoling conclusion that the operation to which one has become accustomed is the best one for him. Surely science is made of sterner stuff than this! There is a best aside from personal inclination and experience and when habit replaces judgment the way of fogyism has been made smooth and short.

Typewriting has been motion studied and standardized. A teacher of typewriting knows through what movements he can attain the greatest speed and suffer the least fatigue. In the beginning of his instruction he is willing to sacrifice speed and quality of work to method. The self-taught typist uses his index fingers only and acquires some proficiency, perhaps enough for his own purposes, but he would be wholly unable to compete for employment in that line of endeavor. The necessity of competition would raise new problems, make new demands and lead to improved methods, but in the absence of any compelling circumstance there is no improvement. He says to himself as we say to each other, I am accustomed to this method and it is the best for me. He might be right, too, when we were wrong. The amount of work of that kind which he had to do might not justify any attempt toward improvements. He, however, is working for himself, but we work for others. The newspaper surgeon who removes his own appendix can use what method he chooses without incurring the just censure of anyone.

The only plan for surgical standardization we have is "the follow-up system." If a hundred operations for inguinal hernia have been performed at a hospital, the follow-up system may permit us to know how many recurrences have developed and who did the operations on the cured and on the relapsing cases, but it is sadly silent about the reason for the recurrences. In so far as the system can be depended on it standardizes men, not methods. Were methods standardized one could know what measure of merit each contains. Motion study leads to a standard which is a carefully thought out plan of performing a function or a careful specification of an instrument. The idea of perfection is

not involved. A standard method is the best method which can be devised at the time the standard is drawn. Standards do not preclude innovation, but they prevent change for the sake of change. When a novel plan or device is offered it must be proven superior to the standard before it can replace it. Have we not gone far enough in surgery to attempt something in the way of standardizing our work? The results of motion study in other industries have been impressive enough to encourage the surgeon to give it more than a passing thought. In every kind of work studied time and motion have been reduced at least one-half. Frank B. Gilbreth, one of the most zealous students of motion and scientific management, took up the study of brick-laying, certainly one of the oldest occupations known to man. The tower of Babel on Shinar's plain was built of brick. It would seem as if time and competition would have perfected brick-laying centuries ago, but Gilbreth was able to reduce the motions used in laying one brick from eighteen to five, with an increase in the number of bricks laid from one hundred and twenty to three hundred and fifty in an hour, with a decrease, too, in the amount of fatigue entailed.

What would one think of Moynihan's child of experience or Deaver's man behind the gun if it were discovered by actual and accurate measurement that their motions were twice as numerous as the necessary number and that the time consumed at operation was twice what it should be? It is more reasonable to expect such a result in surgery than in brick-laying.

How is the start to be made? It would be necessary at first to determine upon the best operation in a given case, for no one would care to devote the necessary time to study of an inferior procedure, and then what instruments it were best to use. Here at the threshold of the investigation a difficulty arises, for we have been encouraged to believe that a sign of real ability in a surgeon was his having his own operation and tools of his own design. "My instrument" and "my operation" is a great "selling argument", as the man in trade would say. Medicine is outgrowing its Bright's disease and Graves' disease. When will surgery be free of its "Kraske operation" and its "Sluder instrument?"

Carlyle said that there was some one who was the greatest fool in London, that each morning he ate his breakfast and looked out upon the world with his dim horn eyes, that men talked with him yet no one could tell who that greatest fool was.

Who can tell the best method for removing a tonsil and what (I refuse to ask whose) instruments are most convenient to that purpose? Someone who looks out upon the world with eyes as clear as dew is doing that operation now and using those instruments and yet we cannot find him out. Instruments must be motion studied before they can be adopted as the best. Shall they be sought by the surgeon or be called for and handed him by the nurse when needed? How shall they be made most accessible to him?

These are questions to be settled by motion study.

Someone has made a copper plated needle holder which from its color is readily distinguished in a pile of instruments. It's a good idea. We have hardly begun the use of color to facilitate movement in surgery. Our instruments must be made of metal and the metals offer little variety in color, but such as there is has not been used to advantage. Few instruments are much more accessible than many. Those who saw Joseph Price do an operation will recall the simplicity and yet the adequacy of his little collection of instruments and will appreciate how grossly we have sinned in multiplying tools beyond necessity, even beyond convenience.

These preliminary problems having been solved, and it strains the imagination to think they are likely to be solved, one may proceed to the study of the operation. Several surgeons who possess skill in the performance of the operation are chosen for observation by another person who is attentive and judicious. The operation is divided into units much more minute than the so-called "steps" of our writers on operative surgery. The observer counts the motions of each unit and times them. It will be found that one operator will require fewer and use shorter movements in one unit of the operation, while another operator may show superiority in another unit. The result of the study is brought together to form an improved procedure. This in turn is studied in the same way and the process repeated until the resulting improvement does not justify further experiment. The operation so derived is conserved in picture or description until an innovation develops which after a similar study proves itself in reality an improvement.

Such a standardization of surgery may seem a remote if not an improbable development. Nearly every manufacturer has considered motion study futile until a competitor appeared who had a different opinion about it. Of course, it seems that no improvement in our work is possible or such improvement would be made. It is to measurement science always appeals when the truth is to be revealed and motion study is the measuring of movement. It is worth while to become interested in it and to become possessed by its spirit if nothing more is accomplished. The surgeon now has an aseptic consciousness. When once prepared for operation, no matter how intent his thought nor what object engages it, he is sensible to the lightest contact with an unsterile thing. When frugality of motion begins to make its appeal to him he will be alert to every futile act and feel a pang of self-rebuke because of it.

AN AVERAGE OF FIVE DOLLARS CONTRIBUTED BY THE DOCTORS IN OUR SOCIETY WOULD ADD FIVE THOUSAND DOLLARS TO THE FUND TO FIGHT THE COLORADO DEATH BILL. WILL YOU CONTRIBUTE IN ACCORDANCE WITH YOUR MEANS?

INTRAVENOUS USE OF MERCURY CYANIDE IN THE TREATMENT OF SYPHILIS.

M. Q. HOWARD, M.D., PUEBLO.

It is intended in this report to show the clinical advantages and results of the use of mercury cyanide intravenously in the treatment of secondary or quiescent syphilis.

The cyanide salt was used for the following reasons: It contains a larger percentage of mercury than the other salts commonly used; the salicylate has 40%, the benzoate 44%, the succinimide 53%, the cacodylate 42%, the bichloride 70% and the chloride 85%, while the cyanide has 88.5%. It is readily soluble in water, one in 12.8 parts. The solution need not be sterilized, as it is in itself highly germicidal, a solution of 1/1000 killing the staphylococci¹, and it is easily prepared by any pharmacist. The intravenous method was employed because the dose could be controlled. There is no question about the amount set free in the circulation as there is when the intramuscular injections and inunctions are used, or when the drug is taken by mouth. The painful gluteals, discomfort and inconvenience are done away with. There is no question as to whether the patient takes treatment, as the responsibility rests with the physician and not with the patient. The technic is simple, all the apparatus required being a sterile syringe and needle. Its use is attended with practically no harm; in a series of some five thousand injections given² there was not one that was attended with any untoward reaction whatever.

The line of treatment carried out under this regime was as follows: Every patient admitted who had a plus Wassermann reaction with the serum was given treatment. Many of these had plus spinal fluids. Each patient received intravenously 3cc. of the solution of mercury cyanide in normal salt solution, equal to 3/10 grain or .016 gram of mercury cyanide.

The treatment was given three times a week for a period of eight weeks or until twenty-four doses were given. After a rest of two weeks each patient was given eight intravenous injections of neosalvarsan. The neosalvarsan was given at the rate of two injections a week, in ascending doses. The first three doses were .6 gram, the next three .75 gram and the last two .9 gram. A Wassermann was done once a month on the blood serum of each patient and on the spinal fluid, together with the colloidal gold test on those with paresis and neurosyphilis. At the end of this course of treatment Wassermans were done at monthly intervals for a period of four months. Those patients whose blood serum or spinal fluid was positive to the Wassermann test or whose fluid reacted in the syphilitic zone to the colloidal gold test at the end of this course, were given a second course after a month's rest. The second course was given exactly as the first and those

¹Hune, Disinfektion, 1912, v.

²At the State Hospital, Warren, Pa.

TYPE AND NUMBER OF CASES.	RESULTS AFTER FIRST COURSE.	RESULTS AFTER SECOND COURSE.	RESULTS AFTER THIRD COURSE.	FINAL RESULTS
40 Secondary syphilis.	14 negative 26 positive	31 negative 9 positive	36 negative 4 positive	36 negative 4 positive
18 Neuro-syphilis.				
Blood	3 negative 15 positive	7 negative 11 positive	11 negative 7 positive	8 negative ² 10 positive
Fluid	0 negative 18 positive	1 negative 17 positive	2 negative 16 positive	2 negative 16 positive
Gold ¹	0 negative 18 positive	1 negative 17 positive	2 negative 16 positive	2 negative 16 positive
32 Paresis.				
Blood	4 negative 28 positive	7 negative 25 positive	10 negative 22 positive	7 negative ³ 25 positive
Fluid	0 negative 32 positive	1 negative 31 positive	4 negative 28 positive	4 negative 28 positive
Gold	1 negative 31 positive	1 negative 31 positive	4 negative 28 positive	4 negative 28 positive

¹Negative gold refers to a colloidal gold reaction not in the syphilitic zone.

²Three negative bloods returned positive.

³Three negative bloods returned positive.

that remained positive after the second were given a third course. No more than three courses were given any one patient in this particular series. No discrimination was made between the treatment given patients with paresis and neuro-syphilis and those with a plus blood and negative fluid.

A urinalysis and blood urea estimation were made on each case to follow the condition of the kidneys. No unusual changes, however, were noted by these tests as a result of the medication.

The subjoined table shows the blood and fluid changes from month to month.

The cases of paresis in which serological cures were effected were serologically paresis. They showed no mental symptoms and the neurological changes were mainly pupillary disturbance and increased knee jerks. It was observed that the spinal fluid Wassermann and gold colloidal reaction of paretics with mental symptoms showed no change during the entire course of their treatment. The blood serum of several, however, fluctuated from plus to minus and finally returned positive.

Unfortunately, the number of patients in whom a definite history of the duration of the infection could be obtained was too small to be of any informative value. The ages of the patients ranged between twenty and thirty-five years, the great majority of them being between twenty and thirty.

I am indebted to Dr. Paul Weston for all the

laboratory work done in connection with this article.

Woodcroft Hospital.

THE CONTRAINDICATION TO THE USE OF QUININE AND THE SALICYLATES IN THE TREATMENT OF DISEASES OF THE MIDDLE EAR.*

CLYDE E. HARNER, M.D., Denver.

Cinchonism is defined in Dorland's Medical Dictionary as the morbid or injurious effect of the injudicious use of cinchona bark or its alkaloids, which is attended by headaches, tinnitus aurium, deafness, and symptoms of cerebral congestion.

The term Salicylism is applied to the toxic effects of excessive dosage with salicylic acid or its salts. These effects are headaches, vertigo, deafness and tinnitus, and these progress to symptoms of meningeal irritation. Thus we see that the effects produced by quinine and by salicylic acid or its salts, the salicylates, are the same when given in poisonous dosage, and consequently it is reasonable to assume that they act through similar physiological processes in therapeutic doses.

Since these drugs act similarly, if there is a contraindication to the use of one of them, that fact should indicate the inadvisability of using the other in the same condition.

The action of Cinchona and its alkaloids upon

*Read before the Triological Society, Colorado Springs, 1920.

the nervous and circulatory systems, especially with reference to the eye and ear, has been studied by numerous investigators.

As early as 1855 Briquet of Paris had reported four cases of temporary blindness resulting from daily doses of quinine. Briquet thought that impairment of vision occurred less frequently than impairment of hearing. Dr. Weber-Liel in 1873 confirmed Briquet's observations.

In 1874, Dr. St. John Roosa, then president of the faculty of the New York Post-graduate School, read a paper before the Society of Neurology and Electrology in which he classified four of the cases of disease of the internal ear then reported, as perhaps cases of congestion and inflammation of the base of the brain and labyrinth, caused by the internal administration of quinine. Dr. Roosa's remarks at that time led to a discussion in which Dr. Jacobi and Dr. Hammond participated, to attempt a settlement of some of the questions involved. Dr. Roosa undertook some experiments upon the human subject as did Dr. Hammond upon animals. These two men in a short time then combined their efforts to determine the actual effects of quinine upon the human being, and Dr. Hammond submitted to examination as to his general condition and as to the condition of his eyes and ears before and after the administration of ten grains of quinine. Before the experiment, the vision was normal, 20:20; refraction emmetropic; pulse 90; ocular conjunctivae white; decidedly free from hyperemia; palpebrae congested at outer and inner canthus. There was no tinnitus aurium. The tympanic membranes were entirely free from evidence of blood vessels.

Dr. Hammond took ten grains of quinine sulphate at 8:30 p. m. At 9 p. m. the conjunctivae were congested at the outer and inner canthus; palpebral conjunctivae were markedly congested over the whole surface. There was no change in appearance of the drum heads.

Dr. Hammond's notes were as follows:

10:00 p. m.—Head feels full; left ear ringing; auricles burn; face decidedly flushed; auricles red, especially lobe of right where there is a localized congestion so marked as to resemble ecchymosis. There is now a vessel along each malleus. The optic papillae are pinkish from apparent enlargement of the lateral vessels.

10:30 p. m.—Right drum head is very much injected along the handle of the malleus and the upper margin; left is less red, but shows vascular injection. Both papillae are pink, left more so than right; face flushed; eyes suffused, ocular conjunctivae decidedly congested; slight headache; tinnitus in both ears.

11:00 p. m.—The redness of the auricles is diminishing, especially the circumscribed spot on the lobe of the left one; the face still flushed; tinnitus continues; no headache; subject feels exhilarated; drum heads still injected along the malleus; vision normal.

Dr. Roosa continued his observations upon three other individuals at the time and found in one that a peculiar tremor of the mandible

occurred together with moderate vertigo. In this case there was also the group of symptoms that had been noted in Dr. Hammond. In another individual, both optic papillae were flushed after taking ten grains of quinine.

These simple observations led Dr. Roosa over fifty years ago to the conclusion that quinine causes a marked congestion of the membranous labyrinth, the tympanic cavity, and the auditory canal. To quote his words, "I object to the use of quinine in aural diseases in any considerable doses, for I have been convinced by experimental and therapeutical experience that it has a peculiar power of producing congestion of the ear."

In 1881, Kirchner reported in the *Berlin Klinischen Wochenschrift* that as the result of his experiments, he concluded "that quinine causes inflammatory processes and permanent pathological changes in the ear, and that the cause of these conditions is to be found not only in hyperemia of short duration, but also in paralysis of the vessels with congestion and exudation."

According to Bartholaw, as the effects of salicylic acid or sodium salicylate develop, more or less headache with a feeling of distention and frontal oppression is experienced. Buzzing in ears, dullness of hearing, and even deafness are usual symptoms when the doses are large. Vision is also affected, the sight becoming dim, or strabismus or ptosis occurs.

Ordinarily, the cerebral effects of salicylic acid are not unlike those of quinine. The sodium salt of salicylic acid, sodium salicylate, may also be used in malarial fevers. If administered in full dose just before the advent of a paroxysm, it will prevent it. By using sodium salicylate to abort an impending paroxysm and quinine to prevent relapse, a better curative result may be obtained. In the milder cases of intermittents, sodium salicylate may be depended upon alone, but to succeed it must be administered before the expected paroxysm.

Bastedo states in his *Therapeutics*: "Salicylism resembles cinchonism, and is characterized by fullness in the head, headache, mental excitement and loquacity or a talkative delirium. Or there may be mental dullness and apathy, with ringing in the ears, deafness, disordered vision and muscular weakness. The ear symptoms are due either to congestion or anemia, or to the degeneration of the nerve elements of the cochlea." When discussing the physiological action and the resultant pathology in regard to quinine, Bastedo asserts that the deafness and ringing in the ears which are of such frequent occurrence, seem to be due mostly to congestion, though arterial contraction and anemia of the middle ear and labyrinth are reported. Such congestion has been found in animals after large doses. If the quinine administration is continued, permanent deafness may result, either from degenerative changes in the spiral ganglia of the cochlea, or from a chronic otitis media, arising from continued congestion.

Hare, another authority, says that after lethal doses of quinine, hemorrhage into the middle ear may be found, and severe epistaxis may en-

sue after so small a dose as four grains. As regards salicylates, Hare asserts that "contraindications to the use of salicylates are meningeal inflammation or congestion, middle ear disease, albuminuria, inactivity of the kidneys, particularly that occurring in pregnancy, and Bright's disease."

Cushney observes that the ordinary symptoms of sensitiveness to salicylates are: the feeling of heaviness and fullness in the head, with a hissing or roaring sound in the ears exactly resembling those produced by quinine.

Tinnitus aurium is produced in several ways. Bacon of New York states in his book that tinnitus in otitis media catarrhalis chronica may be due to adhesions and cicatrices in the middle ear, and in cases of sclerosis where there is connective tissue binding down the oval and round windows, with ankylosis of the stapes. He also states that tinnitus of the pulsating type may be due simply to congestion in the middle ear. Narrowing and stricture of the Eustachian tube may produce a distressing tinnitus, a disagreeable sensation of fullness or heaviness in the head, and occasional dizziness (similar to cinchonism and salicylism). This type of tinnitus is evidently due to pathological changes in the osseous articulations, ligaments and muscles in the middle ear subsequent to insufficient aeration from the tympanic side of the drum, together with the increased pressure within the labyrinth.

Gleason of Philadelphia states that "sometimes the result of anemia, or more rarely, of an aneurysm, pulsating tinnitus ordinarily indicates arterial congestion of the middle ear or of the labyrinth". Gleason is also responsible for the statement that quinine, the salicylates, and certain other drugs are capable of producing tinnitus, either as a result of aural hyperemia, or by their toxic action upon the internal ear. He goes on to say that the "earlier stage of chronic catarrh of the middle ear is ordinarily accompanied by tinnitus, generally constant in character. Later on as the deafness becomes profound, tinnitus often disappears as the result of diminished sensibility of the internal ear."

Many men assume that quinine and the salicylates produce tinnitus simply by action on the labyrinth, but from the experiments that have been quoted above and the observations of Bacon, Sugar and Gleason, we must agree that ordinary arterial congestion of either the middle ear or the labyrinth, or both may produce tinnitus.

We all know, of course, that rough manipulation of an aural speculum within the ear canal may cause a congestion not only of the adjacent ear canal, but even of the drum membrane itself. However, following such occurrences, those who experienced this have not noticed tinnitus, with a sensation of heaviness and stuffiness about the head and face, to say nothing of the ocular changes noted after the administration of quinine and the salicylates.

It would seem that the fact that quinine and the salicylates are absolutely contraindicated,

therefore, in middle ear disease, has not been emphasized sufficiently. The truth is that there are probably many oto-rhino-laryngologists over the country of the highest repute who have lost sight of the positively harmful use to which they may be putting these valuable drugs by administering them when there is an already congested middle ear with a beginning otitis media. Some of the authorities aid in this general misconception of the rank and file otolaryngologist and the general practitioner by their sin of omission. They do not in most instances mention the use of these drugs at all in the treatment of myringitis, otitis media and mastoiditis, assuming that their action is known and respected.

A few personal experiences along this line may be quoted, bearing out the contentions of authorities which have been made from a purely theoretical or research point of view.

A patient, Mrs. C. L. F., white, aged twenty-six years, was referred for sudden deafness and tinnitus of both ears. She had a severe head cold, but upon inspection the tympanic membranes showed nothing except a slight congestion along the handle of the malleus and a marked dullness in the color of the membranes. A watch could not be heard on contact with either ear. Questioned in regard to taking of any medicine, the patient admitted having taken twenty-nine bromo-quinine tablets inside of thirty-six hours' time. Omission of this preparation and substitution of pilocarpine and strychnine coupled with inflation later, brought her to her normal hearing.

A man, thirty-six years of age, was being treated for an acute middle ear abscess. The drum had been incised, drainage was quite profuse and the temperature fell. After several days' time when the condition should have been resolving satisfactorily, I found more marked congestion of the drum. It was thicker and there was a suspicion of sagging of the postero-superior quadrant. Upon questioning the patient I found that he was of his own accord taking some powders of salicylic acid which had been given him some time before for rheumatism. He was taking twenty grains in a day. After stopping this drug, the otitis media resolved progressively in one week.

A boy, ten years old, was seen by me, having been brought in for "ear-ache" and a severe "cold in the head". Examination of the right tympanic membrane revealed a normal appearance except for slight congestion in Shrappnell's membrane and a dulling of the cone of light. There was no elevation of temperature and there had not been any pain since the night before. Treatment of the cold was instituted, of course omitting salicylates and quinine. However, the mother gave the child a five-grain tablet of aspirin every four hours on her own initiative and I was called three days later to find a frank otitis media which required incision of the drum, and also a congestion of the left tympanic membrane.

These experiences have borne out the theoretical objections to the use of quinine and the

salicylates in diseases of the middle ear and my plea is for a more general recognition of their unsuitableness not only by the general practitioner but also by a goodly number of specialists in ear, nose and throat practice.

327 Mack Building.

SEND IN YOUR CONTRIBUTION TO THE ANIMAL EXPERIMENTATION FUND.

ACCURACY IN DIAGNOSIS.*

E. D. BURKHARD, M.D., PUEBLO.

My excuse, if any be necessary, for the remarks I shall offer on this subject is that the matter does apply to all of us some of the time and possibly to some of us all of the time, and it is my hope that a frank and candid consideration of a few cold facts may cause some reflections and comments resulting in benefit or encouragement to many, if not all of us. Also, what I shall say will, I hope, merit your attention and even serious consideration, for while it will be a bouquet of blossoms and bricks, they will be cheerfully distributed not by one who assumes a "holier-than-thou" attitude, but rather by one who frankly confesses that he, at times, may be "chief among sinners". Generally speaking, I feel quite certain there will not be much difference of opinion although undoubtedly each of us will have no difficulty in producing, promptly enough, one or more perfectly good alibis.

Surely you will agree with me that in matters of this nature the real benefit of an essay is brought out in the discussion and is of permanent value in direct proportion to the real thinking it has provoked. Logically, discussion or argument can only be profitable or constructive by having at least one common point to work toward or to work from. Then let us further agree that Diagnosis is the art or act of discriminating between diseases and distinguishing them by their characteristic signs and symptoms and that Accuracy means exactness, preciseness, correctness. Q. E. D., Accuracy in Diagnosis means not only correctness in identifying the particular disease or pathology, but, equally, correctness in estimating the extent or degree of involvement. In other words, Accuracy in Diagnosis not only implies proper terminology but sane and proper interpretation of the extent and importance of the condition. For example: "hyperthyroidism" may be a strictly accurate diagnosis, but to impress upon the patient or his friends that a relatively slight enlargement with symptoms in proportion is "enormous" or "tremendous" is not only inaccurate, but may be an unmitigated falsehood and absolutely inexcusable. Beyond peradventure, the man who will thus deceive a patient who has applied for and is paying for a truthful expression or opinion, will surely have similar disregard for the truth in dealing with his brothers or his fellows whenever his own miserable advantage is involved.

Again, we can agree that there are at least three indispensable pre-requisites to Accuracy in Diagnosis: First, uniformity of terminology. This was strongly emphasized to those of the profession who were fortunate enough to have army or navy experience, and it is now being sustained in the laudable effort to "standardize" our hospitals. (And right here may I suggest that the sooner we eliminate such comic-supplement-science diagnoses as "scarlatina", "diphtheroid", "rheumatic", "neuritis", "neurasthenia", "hysterical", etc., etc. q. s. ad nauseam, the better will it be for patient and profession alike. Not because the words themselves are etymologically improper but because they do remind one of Schultz's observation on Christian Science:—"It proves not'ing as vot it is and somet'ing else vot it ain't.") The second pre-requisite is real thinking. It has been well said "some men think they are thinking, when in reality they are but re-arranging their prejudices". This is exemplified when one makes a "snap diagnosis" and then labors to confirm it. The third pre-requisite is straight seeing—the ability and the willingness to see things "as is" rather than as we wish they were and to appraise them at their real value.

While I deplore the passing of those crude (?) and primitive instruments of diagnosis, the keen eye, the trained ear and the delicate touch, when backed by those marvelous minds from Hippocrates and Galen down through the ages to Flint and Osler, yet I would not want to give up the microscope, the stethoscope and the sphygmomanometer for their return. The multitude of instruments of precision have, I dare say, provided more keen eyes, more trained ears and more delicate touches for the profession in this year of grace than were known collectively to the entire world prior to the twentieth century, and mankind is today the bountifully blessed beneficiary thereof.

Our average "Accuracy in Diagnosis" as well as our accuracy in prescribing is perhaps about like the accuracy of aim of the average duck shooter—the gun was at least pointed in the direction of the game, although at the moment of firing the actual path of the shot charge was many yards above or below, ahead or behind the flying bird. So it is that we are content to make a more or less euphonious, equivocal or verbose "diagnosis" and explanation, to satisfy the patient or his friends—but more accurately to screen our own ignorance or laziness. Indeed, our situation is not unlike that in the newspaper world, the movie and theatre world and even in some lines of business—notably the automobile industry. The yellow newspaper justifies its indulgence in sensationalism, exaggeration and falsehood by its sworn statements of circulation, and "circulation" means patrons, supporters, endorsement. In the amusement world the lurid, the lascivious, the licentious, the outrageously suggestive and impossible situations and events that are played up to and continually paraded before our young folk in their delicate days of growth and habit formation are more than enough to exhaust a Shakespearean vocab-

*Read before The Staff, St. Mary's Hospital, Pueblo, March 9, 1921.

ulary of resentment—and yet the managers smilingly assure us that it is “uplift stuff”, “play with a moral”, etc., and that the people demand it—and if you don’t believe it, just make personal observation of the line at the ticket window day after day, night after night, storm or fair. In the motor car world we naively parade our own moral obliquity by demanding replacement for a part broken while “just driving down the road” instead of the result of a brush with a pesky little flivver with an engine or a driver, temporarily at least, outclassing us. Or again in demanding replacement on a tire which “has only made 2,143 miles” when in reality we boasted to a friend three months ago that it had gone 7,777 miles and was then good as new. Permit me to assure you that the auto men have not been deceived, even if they do accept our story (with mental reservations) and proceed to collect the deficiency from us or the next unfortunate with a job that is bristling with opportunities. And then we curse the garage and repair men for being “crooked”, “grafters”, etc.

Have I gone far enough to demonstrate the analogy? Lest the similarity be obscured may I point out a few instances. Called to an adored child with moderate fever, hurried respiration, frequent, dry, hacking cough, etc., and a history of hot, stuffy rooms, a cold ride and insufficient protection, perhaps constipation or other dietary irregularity—plainly a “common cold”, accurately “acute bronchitis”. How much more impressive to look real serious and be “fearful” of pneumonia, when we might be quite as “fearful” of Asiatic Cholera!

Again, one of our lady patients comes into the office with some of the signs and symptoms of “female complaint”. We immediately recognize one of the signs by the quality and style of her apparel; another by our knowledge of her family’s financial reputation. Her complaints are sufficient and definite enough to indicate that something may be wrong below the waist line.

Honorable, sensible advice and suggestions along the line of hygiene are too commonplace; medicine, even if it be a brand new discovery and very expensive is too slow and too cheap—and then it is not so sure either; so the only alternative is to peel several layers off the family “roll” by the operating room method, by removing a beautiful specimen of a normal appendix or in a horrible attempt to improve the physics and furniture of a wonderfully perfect lower abdomen and pelvis.

Just one more case will serve to emphasize the similarity: The patient, man or woman, old or young, with most any line of symptoms which we are too tired (?) or too ignorant to properly analyze or interpret. A more or less (accent on the “less”) thorough physical examination, numerous questions and some laboratory tests all of which have failed to inspire the rational prescription and treatment. There is just one thing left—sometimes it isn’t “left” but comes first—a Wassermann—almost superfluous because we know (?) the patient needs a course of 606. At any rate our financial appetite very plainly

indicates the imperative and immediate need. Inevitably, the victim is either frightened or bullied into having his system loaded up with arsenic and mercury, *secundem artem*, with about as much benefit to the condition as the “big Bertha” was to the hospital bombers of 1918.

The foregoing illustrations demonstrate plain moral obliquity.

Now for another angle. I have mentioned “comic supplement science” in the use of “scarlatina”, “diphtheroid”, “neurasthenia”, “neuritis”, etc., but I must leave to keener wit than mine the task of explaining the difference between it and that modern monstrosity of explanations, the science (God save the mark) of Chiropractic. This is also the time and place to make and answer a perfectly obvious and proper criticism before it is voiced. I freely admit that all these questionable terms are in every good dictionary, each followed by perfectly good and useful definitions. But “scarlatina” is only scarlet fever modified by some at present unknown quality of resistance in the afflicted individual and quite as liable to appear in the next contact as virulent, or even fatal, scarlet fever. Then why not use the proper term and modify it with a legitimate adjective indicative of degree, instead of allowing or encouraging a false sense of security in the family or friends? “Diphtheroid” is an adjective, perfectly proper in itself, but most often used to “prove something else vot it ain’t”. “Rheumatism”, “neurasthenia”, “neuritis”, “hysteria”, etc., etc., are all accepted titles for more or less definite conditions having vague, obscure, or quite indefinite if not actually unknown pathology. The real conditions, however, are not pandemic nor epidemic by any means while the terms are used glibly and euphemistically instead of “I don’t know”. Furthermore, I grant you that almost never a day passes but each of us is called upon to explain all sorts of nondescript pains, sensations and feelin’s—in short to answer questions that have no replies—questions that would have made Solomon tear his hair in wild despair—but such circumstances must not be adopted as a guide or standard for the establishment of a principle, neither should such “symptoms” be dignified by explanatory terms so suggestive and so impressive to the laity.

Be assured, gentlemen, I am not assuming to “teach old dogs new tricks”, but it is a fact that one characteristic, well nigh universal, of our profession is an ambition, expressed or implied, to be “right up-to-date”, to strive to “do better and still better work”—and this very ambition implies not only the possibility, but the actual desire to learn. And when, as does rarely occur, the bump of ambition becomes atrophied, that man does not figure very long in the affairs of the medical world for inevitably he either retires from active practice or, perforce, becomes interested in lawyers and court procedures. Each and every one of us will blushing admit his natural ability to learn and modestly confess his ambition to improve (if it be possible); then, in Heaven’s name, why not strive to learn the

philosophy of square dealing and conscientiously endeavor to practice it? Truthfully it is my firm belief and conviction that the Pueblo County Medical Society, collectively and individually, are honest and sincere in a desire to "do better work", professionally as well as scientifically, although only too often it seems apparent that a banker is to be the final judge, rather than God, or even Conscience.

Do I hear you ask "why all this argument for an impossible ideal?" Then let me answer with other questions! Thus far have I made an untrue statement? Are not my arguments cogent? Is any one present who will have the temerity to stand and publicly acknowledge that he is not possessed of the ambition characteristic of our profession or that he is entirely satisfied with his present status of professional knowledge and ability? Is it your preference to aim low because of the ease of attainment rather than aim high because it means work, hard work, and more hard work,—work, world without end? I am appealing for an ideal, yes, a high ideal, but not an impossible ideal. We are well agreed on most, if not all, fundamentals and principles, then why not make a real, honest effort to get together and keep together? With Envy, Malice, Ignorance, Prejudice and a host of lesser devils without, constantly tormenting and conspiring against us, why should we continue to furnish them, not only encouragement but countless openings and opportunities? You may recall a recent editorial in a local paper which abuses—yes, vilifies our profession outrageously and maliciously for the efforts of our legislative committee to obtain legislation having for its sole object the protection of the sick, the afflicted, and the innocent from the bloodthirsty vampires who contribute lavishly of their blood-stained wealth to the usurious dividends of the offended publisher. That editorial, plainly exhibiting its source, authority and animus, needs only the official signature of the chiropractor's publicity agent to complete it. With that signature omitted the editor assumes authority for the article and is not so much concerned about the moral and health issues as that the law "will stop all advertisements for patent medicines" regardless of their worth or worthlessness, their possibility of some good or their probability of irreparable harm. In that same issue appears a total of one and a half columns of patent medicine plate (the daily average is even more, for that was Monday's paper) with everything from Grape Nuts to Lydia Pinkham and Dr. Southington's Abortion Compound (guaranteed). Evil is to him who evil thinketh—very naturally "birds of a feather" should be of similar mind and logically, they, some editors and patent medicine sharks, cannot appreciate an ideal above the \$.

But to return to our subject, or what is left of it. I wonder if we realize how much we, ourselves, are to blame for this willingness, almost eagerness, to malign the profession? Individually we are quite exempt—collectively we are somewhat in the attitude of the nigger boy with his head protruding through the canvas sheet

for anybody to "try his luck" with baseballs—three throws for a nickel.

Conferees, relief can only come from within our own ranks and it will require concert of action—not for one or two, not now and then—but all together and all the time.

GET YOUR NAME ON THE LIST OF CONTRIBUTORS TO THE FUND TO KILL THE COLORADO DEATH BILL.

News Notes

Dr. William C. Finnoff of Denver has gone to Vienna for post-graduate study and observation. He is expected to return about the first of the coming year.

Dr. C. J. Lowen of Denver has removed his offices to 232 Metropolitan Building.

Old friends of Dr. Nathan Newcomer and his wife, Dr. Elizabeth Newcomer, will be glad to welcome them in Denver, where they have recently located. It is understood that they are to take up the practice of roentgenology.

Dr. Robert T. Frank of Denver has gone East on a vacation, expecting to return about November 1. A free home for tuberculous children has been provided near Manitou through the will of the late Mrs. Edith Holbrook Latham Sobernheimer.

A school to be known as the Tuberculosis Nursing school is to be started in Colorado Springs this fall under the auspices of the Colorado School for Tuberculosis and the Glockner Hospital and Sanatorium Training school. The school will open October 1, according to announcement in the daily press.

Dr. G. P. Lingenfelter of Denver, accompanied by Mrs. Lingenfelter, recently spent several weeks on his ranch in northwestern Colorado.

Dr. William B. Lutes of Merino, Colorado, who spent some two weeks in a Denver hospital with an infection of the hand, has now recovered and is able to resume his practice.

Dr. D. M. Cook, formerly of Fort Morgan, has removed to Palisade, where he will locate permanently and continue in general practice.

Dr. P. J. Pothuisje of Denver was called East early in September because of the illness of his mother.

A merger of the University and Boulder hospitals was announced August 30. Control of the merged institutions will be vested in a Chamber of Commerce board. The plan provides that the community shall maintain the University hospital until August 1, 1924. New equipment for the operating room at the University hospital, purchased at a cost of \$1500 by the Women's advisory board, is on hand and will promptly be installed.

Dr. Grant S. Peck of Denver, who has been in Vienna since July, returned home on September 1.

Architects' plans for the psychopathic ward of the new State Hospital and Medical School are said to have been approved by Dean Meader and a committee of neurologists.

Dr. David Winternitz of Colorado Springs has been appointed county physician of El Paso county to succeed the late Dr. A. H. Peters.

Dr. T. E. Carmody of Denver expected to leave on September 10 for Salt Lake City, where he will participate in the program of the Pacific Coast Oto-Ophthalmological society; following this he will attend the meeting at Minneapolis of the post-graduate section of the American Academy of Ophthalmology and Otolaryngology, returning home about September 25.

(The editorial office being located in Denver, news notes from other cities can usually be obtained only through the co-operation of local secretaries in sending them in. Such assistance will be appreciated.)

CONSTITUENT SOCIETY SECRETARIES SHOULD REPORT DELEGATES.

There are a number of constituent societies that have not yet reported the names of delegate and alternate to the coming annual session of the state society. Secretaries who are delinquent in this respect are urged to at once report the names of their elected delegates to the secretary of the state society, in order that the local society shall not be unrepresented.

F. B. STEPHENSON, Secretary.

MEETING OF COLORADO HEALTH OFFICERS.

On Saturday, September 30, immediately preceding the annual session in Pueblo of the Colorado State Medical Society, will be held in Denver a meeting of city and county health officers of the state.

Surgeon General Cumming has promised to send a representative of the Public Health Service to talk on some timely public health subject, and health officers from surrounding states have been invited to participate in the program—Dr. G. S. Luckett, Director of the Bureau of Public Health of New Mexico; Mr. Harold Gray, sanitary engineer of New Mexico, will have part in the program and others from Utah and Wyoming are expected.

Among Colorado men who will take part in the meeting are C. W. Thompson of Woodcroft Sanitarium and Drs. J. N. Hall and J. W. Ames of Denver.

The time should be convenient for those who expect to attend the State Society meeting, since the entertainment planned for Saturday evening can be fully enjoyed and the trip to Colorado Springs follow on Sunday at any convenient time of day.

The meetings will be held in the auditorium of the State Office Building, Colfax and Sherman street, and it is understood that anyone interested in public health matters is invited to attend.

Two Weeks' Institute in Denver on Nutritional Problems of Children.

The Colorado Tuberculosis Association has been fortunate in securing the services of Dr. Wm. R. P. Emerson, of Boston, for a two weeks institute on the Nutritional Problems of Children. The institute will be held in Denver from October 18th to November 1st, where excellent facilities for demonstration purposes are available. Dr. Emerson is a national authority on the malnourished child and has organized the Nutrition Class method in the schools.

The Institute is being conducted especially for physicians, public health nurses, dietitians, social workers, physical education and home economics teachers and other persons interested in nutrition.

The course is not limited to residents of Colorado but is available to students from neighboring states—Wyoming, Nebraska, Kansas, New Mexico and Utah.

Dr. Emerson's method enables the student to carry on a complete nutritional program in the public schools. Since it is now known that one-third of the school children in the country are malnourished, this training in nutritional work has become an essential factor in the health work of the schools.

To be convinced of the value of nutritional work in the schools, one has only to look at the report of the Open Air School in Denver, where Dr. Emerson's method was used during the past year. Good health habits were taught; there was no case of contagious disease during the semester; home study was eliminated, no pupil failed in his work and the average gain in weight for twenty-five pupils was 7.22 pounds.

The tuition for this course is \$25.00. Application for enrollment should be made at once to the Colorado Tuberculosis Association, 409 Barth Building, Denver.

THE GORGAS MEMORIAL FUND.

At the St. Louis Annual Session the Board of Trustees reported to the House of Delegates that in response to a request received from the directors of the Gorgas Memorial Institute of Tropical and Preventive Medicine for the cooperation of the American Medical Association, the Board had taken action which resulted in the appointment of a committee, representing the American Medical Association, to act on the project. The following were appointed: Dr. George E. de Schweinitz, Philadelphia; Dr. Charles W. Richardson, Washington, D. C., and Dr. Fred B. Lund, Boston.

The House of Delegates unqualifiedly endorsed the Gorgas Memorial as a tribute to a past President of the organization and one of its most distinguished and loved members. At its recent meeting the Executive Committee of the Board of Trustees received the following statement from the committee and directed its publication.

Statement and Appeal for Cooperation.

As a result of the stimulating suggestion of President Porras of Panama, it has been resolved that a fitting memorial shall mark the humanitarian service of the late Major General William C. Gorgas, and the beneficent influence of his life and work on mankind throughout the world. Following the thought of President Porras, it has further been decided that this memorial shall take the form of a scientific institute for the study of tropical diseases and of preventive medicine.

No better place could have been selected than Panama City, the gateway between the Atlantic and the Pacific, where General Gorgas' well-planned and executed work made possible the building of the Panama Canal.

It is hardly necessary to call the attention of the medical profession to the far-reaching effects of General Gorgas' work on the welfare of the people of the whole world, especially in tropical and semitropical climates, and in all places subject to the inroads of infectious disease.

We of the medical profession remember him as our surgeon general during the early part of the world war. We remember his prompt recognition of the necessity of bringing into active service large numbers of physicians and surgeons from civilian life. We remember his genial and kindly nature, his high character, and his steadfast effort directed toward the organization and equipment of the medical corps of the army. We remember the patriotic response. We remember him as a great sanitary officer, to whom we wish to pay a lasting tribute.

A central committee has been formed, with Admiral Braisted, retired, ex-President of the American Medical Association, as its president. The American Medical Association has appointed a committee of three to work in accord with the central committee, and through its members this appeal is made to the American medical profession.

The plan is to build at Panama an institute for the study of tropical and infectious diseases, with a hospital, laboratories, departments for research and all other facilities required in an institute of this character, erected and administered according to the most progressive, modern ideals. The Panamanian government, owing to the far-sighted, philanthropic vision of President Porras, has donated the great Santo Tomas Hospital, and also the ground on which it is proposed immediately to construct the buildings as they have been described. Dr. Strong has been appointed the scientific director.

In conjunction with this work in Panama, there will be established in Tuscaloosa, Ala., the Gorgas School of Sanitation for the purpose of training country health workers, sanitary engineers and public health nurses, especially educated to deal with the problems peculiar to the Southern states.

An endowment of six and one-half million dollars will be required to enable the institute to

carry on the work according to the plans which have been formed.

The Republic of Panama has demonstrated its sympathetic and practical interest in this enterprise with splendid liberality. The physicians of our country, and especially the members of the American Medical Association, surely will not disregard the memory of a former president, and will seize the opportunity to make in this respect a contribution of which they will be proud.

The campaign for funds is to be international. A large response is expected from North, Central and South America, since the nations of these countries have been the chief beneficiaries of the labors of General Gorgas. It is fitting that his co-workers of the American medical profession should be requested to respond generously to this appeal. It is hoped that every member of the American Medical Association will make as liberal a subscription as possible. Any sum will be gratefully received. Checks should be drawn to the order of the "Gorgas Fund" and should be mailed to the American Medical Association, 535 North Dearborn Street, Chicago.

CHARLES W. RICHARDSON, Washington, D. C.,

F. B. LUND, Boston,

G. E. DE SCHWEINITZ, Philadelphia.

—Jour. A. M. A., August 26, 1922.

The Tri-State District Medical Association Meeting.

The annual assembly of the Tri-State District Medical Association, comprising the States of Iowa, Illinois and Wisconsin, will be held at Peoria, Illinois, October 30, 31, November 1 and 2. The entire time of the assembly will be taken up with scientific addresses, essays and diagnostic clinics. The Colorado physicians are cordially invited to attend. Hotel reservations should be made early by communicating with Dr. Wm. B. Peck, Managing Director, Freeport, Ill.

A partial list of names of prominent men from various clinics and universities of the United States who will participate in the program runs into the thirties. Attendance at this session should prove of very high scientific advantage.

DEATHS.

Dr. John W. Meacham of Denver died on August 27, 1922, at the age of 54, after an illness of some three months. Dr. Meacham was born at Clarksville, Tennessee. He graduated from the medical department of the University of Louisville in 1884. He was licensed in Colorado in 1909 and became a member of the Colorado State Medical Society in 1919. In late years he has specialized in eye, ear, nose and throat. The cause of death was lymphatic leukemia.

Dr. John Livingstone Greene of Eagle died in Salida August 6, 1922, of pneumonia following an operation. Dr. Greene was born in Vermont in 1838. He graduated from the Denver College of Medicine in 1886. Although Dr. Greene had attained the age of eighty-four and had retired from practice he was very zealous in retaining his membership in the Colorado State Medical Society.

Erratum—Under "Deaths" in the August issue the date of death of **Dr. Eleanor Lawney** should read August 9 instead of October 9.

WANTED.

Mrs. Julia Little, experienced nurse, registered in Colorado by examination, would like to take care of two patients in her country home. Will take mental defectives. Can give references from reputable physicians. Address Golden, Route 1.

For Sale—Office equipment of the late Dr. John W. Meacham, 502 Mack Block. Telephone that office.

GET YOUR NAME ON THE LIST OF CONTRIBUTORS TO THE FUND TO KILL THE COLORADO DEATH BILL.

Notes From the Library

Diseases of the Skin. For the Use of Students and Practitioners. By Oliver S. Ormsby, M.D. Professor and Head of the Department of Skin and Venereal Diseases, Rush Medical College (in affiliation with the University of Chicago); Dermatologist to the Presbyterian, St. Anthony's and West Suburban Hospitals, and the Home for Destitute Crippled Children; Consulting Dermatologist to the Orphan Asylum of the City of Chicago, etc. Lea and Febiger, Philadelphia, Publishers. Octavo, 1,166 pp. with 445 engravings and four colored plates. New (2nd) Edition. Cloth, \$10.00 net.

The present edition of Ormsby's well known textbook represents what is probably the most inclusive American work on this subject, being practically encyclopedic in character, and one in search of information on new or rare dermatoses will usually find it here.

Thoroughly scientific and based upon the most modern knowledge and thought relating to dermatology, it is still intensely practical and affords a reliable guide to the general practitioner who is obliged to deal with skin disorders, as well as a valuable text for the student and a comprehensive reference work to the experienced dermatologist.

Excellent and well selected illustrations supplementing the remarkably clear and complete descriptions render possible the recognition of most of the common and many of the unusual disorders of the skin, even by those who lack opportunity for clinical observation.

Treatment is considered in a highly rational and practical manner, emphasis being laid upon the manner of application of the various therapeutic procedures; a most important feature in the successful management of skin disorders, in which method is superior to means. A. J. M.

A Text-Book of Physiology: for Medical Students and Physicians. By William H. Howell, Ph.D., M.D., Professor of Physiology, Johns Hopkins University, Baltimore. Eighth Edition. Thoroughly Revised. Octavo of 1,053 pages, 308 illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$6.50.

This book can best be presented in the words of its author as stated in the preface to this edition. "There has been no fundamental change, no epoch making discovery, but there has been the usual shifting in points of view as our knowledge has widened."

One cannot read through the book without appreciating the fine scientific attitude toward the entire subject. The suspension of judgment on many problems is most gratifying. All in all it remains one of the best and most valuable textbooks on physiology printed in this country.

W. S. D.

NEW AND NONOFFICIAL REMEDIES.

In addition to the articles enumerated in August issue, the following articles were accepted during July by the Council on Pharmacy and Chemistry of the American Medical Association:

Intra Products Company: Ven Calcium Cacodylate Ampules-Ipeco.

Winthrop Chemical Company: Theocin.

During August the following articles were accepted for inclusion in New and Nonofficial Remedies:

G. W. Carnrick Co.: Corpus Luteum-G. W. Co. Gradwohl Laboratories: Sterile Solution of Mercury Oxycyanide-Gradwo.

Lederle Antitoxin Laboratories: Pollen Antigens-Lederle; Solution Epinephrine-Lederle.

New York Intravenous Laboratory: Loeser's Intravenous Solution of Mercury Oxycyanide.

Parke, Davis and Co.: Antipneumococcic Serum (Polyvalent).

Winthrop Chemical Co.: Luminal Sodium Tablets 1½ grains.



DR. MELVILLE BLACK
President-Elect, Colorado State Medical Society, 1922-1923.

Colorado Medicine

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Editorial Comment

THE NEW PRESIDENT-ELECT.

Dr. Melville Black, President-elect of the Colorado State Medical Society, was born in 1866 at Washington, Iowa. He graduated in medicine in 1889 at the Bellevue Hospital Medical College, New York. During the following year he engaged in post-graduate work in the New York post-graduate schools and hospitals, and then was appointed on the interne staff of the Manhattan Eye and Ear Hospital. He completed his service as house surgeon there in 1891 and came to Denver to take the chair of eye, ear, nose and throat in the Medical Department of the University of Colorado. He held that appointment until the chair was divided and Dr. Chase was made professor of ophthalmology. He served as professor of oto-laryngology for a few years and then accepted the chair of ophthalmology in the Gross Medical College. When the Gross and University Medical schools combined he was given the chair of ophthalmology and held it until the Denver and Gross school combined with the Medical Department of the University of Colorado, with which school he has been identified ever since, and is chief of the department of ophthalmology at the present time.

One of the first things Dr. Black did upon coming to Colorado was to join the County Medical Society and the State Society. At that time the latter society had an entirely independent existence from the County Society. In 1902, under the reorganized plan of the American Medical Association, the three societies were related on their present plan. Dr. Black became the second secretary in 1905, succeeding Dr. James M. Blaine. He served as secretary of the State Society for nine years. He has always taken a keen interest in Colorado Medicine and was a member of the publication committee for a number of years. He has regularly been a staunch supporter of organized medicine and believes that its influence upon the medical profession can only be broadening and uplifting.

REMARKS ON THE ANNUAL MEETING.

The expressions which the secretary heard at the meeting and after his return to Denver have mostly been laudatory of the character of the scientific papers read and of the special ad-

resses. It is the intention of the secretary, as far as it lies within his province, to try to make some improvement in each annual session over the previous one and with that idea in view he has solicited criticisms from various ones whom he has met casually. Perhaps it is well to take the bitter dose first and follow it with a sweetener. The program comprised too many papers for the time allotted for their delivery and discussion. One-half hour, fifteen minutes of which is taken up with the paper, gives only fifteen minutes more for discussion, and when six or seven members take their full five minutes the program is necessarily pushed along a little at a time so that the meeting ends an hour or two hours late; and that not only is unpleasantly tiresome for the listener who stays but puts the last few speakers at the disadvantage of talking to an audience which is small as well as tired.

Whether the experiment of leaving the afternoons free on the program will be tried again is a thing to be decided, involving as it will a reduction in the number of papers in order to give each one sufficient time. It must be remembered, however, that the constitution expressly limits a scientific paper to fifteen minutes in its reading and the crowding of the program at the session just closed does not excuse those whose papers exceeded the limit. Nevertheless, whatever arrangement may be made for next year, the attempt will be to prevent overcrowding of the program. No one can listen with deliberation to a speaker who perforce is reading rapidly, and the whole atmosphere of the meeting is the opposite of that quiet and serenity which conduces to receptivity.

As to the quality of the program the word of certain visitors from other states to the effect that they had not been present at any meeting of any state society which exceeded this one in interest was, probably, dictated by more than mere politeness and convention. Every paper was meritorious and it is worth commenting on that all but one were read by the authors in person, which has not always obtained in the past.

The address of Dr. Orndoff was masterly in its content and delivery, holding the mixed audience to its very close. The commendable conservatism manifested is in keeping with the scientific attitude. The statement by Dr. Orndoff that so far experimental work, which he cited as being done in Chicago, had not shown a stimulating effect of radiation on the growth of tissues was one of the most significant points in his discourse. It would mean a lot to radiologists if

they could feel convinced that the x-rays, while perhaps stimulating function in proper dosage, do not stimulate cell multiplication.

The comprehensive and valuable address of our own Dr. Hall and the well prepared and well delivered presidential address of Dr. Epler appear in this issue.

A part of the business transacted by the House of Delegates consisted of a resolution objecting to the training of chiropractors by the Veterans' Bureau; a resolution supporting the resolution of the House of Delegates of the American Medical Association regarding the Volstead Act, favoring the release of bonded liquor for medicinal use only, to be supplied at retail prices to be fixed by the Government; a resolution expressing the loss to organized medicine in the death of Dr. Alexander R. Craig; a resolution in opposition to depriving sections in the American Medical Association of representation in the House of Delegates; a resolution providing that the committee on scientific work shall arrange the program of the annual meeting so as to include a portion of the annual program of the Health Officers' Organization; a resolution defining the application of the code of ethics as relating to group practice. Various other resolutions were offered, and those which were adopted will of course appear in full in the complete minutes of the House of Delegates. As a matter of fact, this was the most "resolving" body of delegates that has met for many a year.

The secretary extends the felicitations of the Society to the new officers, headed by Dr. Melville Black of Denver as president-elect.

Interesting points about the registration are that there was a total of three hundred and fifteen; that every constituent society but one is represented on the register; that six other states were represented, Illinois by four, Indiana by one, California by two, Missouri by one, New Mexico by two, Texas by one; and there was one representative of the United States Army. The Denver registrants were one hundred and twenty, El Paso County seventy-eight, Pueblo County thirty-five, the smaller societies having a good representation in proportion to their membership. The time for the next meeting, which will be held at Glenwood Springs, will probably be set for September, exact date to be announced later. The names of the new officers appear in the revised list published elsewhere in this issue.

F. B. STEPHENSON,
Secretary.

PROGRESS IN CANCER EDUCATION.*

It seems to be generally agreed by those who devote time and thought to the study of cancer, that progress in the management of this terrible scourge lies very largely in the domain of education; education of the laity in the early symptoms, education of our own profession in its management. To this end the American Society for the Control of Cancer is pa-

tiently and steadily pursuing its work. Carrying on, as it does, a constant campaign throughout the year, it adopted last year the plan of an intensive nation-wide campaign week. This was such a marked success in late October and early November of 1921 that a further Campaign Week will be carried on November 12 to 20 of this present year. Much was learned last year which will be of value and help in this coming campaign.

The Society has been incorporated during the past year, its offices, at 370 Seventh avenue New York City, have been enlarged and improved, and the office force has been doubled in strength. Through a special appropriation made by the Director of the Commonwealth Fund, a field secretary and director is now employed who goes from state to state aiding in every possible way the state chairman and his various committees. This is a procedure of the greatest possible value; useful suggestions are constantly being received and in turn transmitted to the various workers. At the last annual meeting of the Society Drs. Hubert Work, W. W. Keen, Frank Billings and T. W. Huntington, as well as Mr. Melville E. Stone, the dean of journalists in America, were added to the advisory council. Each of these well known men has added much of value in the work of the Society.

Dr. Work, our postmaster general in Washington, has kindly authorized a postal cancellation stamp for nation-wide use during the November campaign. Dr. Frank Billings, at no little personal inconvenience, has carefully written for us a brief paper for nation-wide church, lodge and other reading, during the campaign week. (It is most earnestly requested that this paper be given the very widest possible reading in Colorado. Copies will be distributed by Dr. F. W. Kenney, state chairman). The Society is indebted to Mr. Melville E. Stone of New York for most valuable suggestions in the matter of newspaper publicity.

In making efficient the coming campaign four things are of prime importance: 1. Newspaper publicity, which has been, and is, so freely given us. We cannot possibly overestimate the value of this. 2. The publicity afforded by the motion picture houses, which have most generously helped us and which promise to give us far more wide-spread and efficient aid this year than ever before. 3. Talks by physicians (brief talks, twelve to eighteen minutes) before groups of the laity, these groups of varying size. 4. Professional addresses before medical societies, dental societies, groups of nurses, etc.

Broadcasting by radio will be a valuable feature in this coming campaign. Suitable placards will be placed on street corners (as so well done in St. Louis last year), in shop windows, in street cars, etc. Wide distribution will be made of the carefully prepared pamphlets of information issued by the Society. We will have the earnest cooperation and help of Health Boards, Public Health Service, the

*Resumé of remarks made before the Colorado State Medical Society at its annual meeting, October 3, 4, 5, 1922.

American Red Cross and other agencies. Carefully prepared addresses will be made before the students in our medical schools, as emphasized by Dr. Matas of New Orleans. It seems perfectly proper to emphasize, in all these talks, the value of periodic examinations of people over thirty-five to forty years of age. Without any doubt whatever these periodic examinations will play a very great part in the preventive medicine of the future.

We must teach people not to be afraid or ashamed to discuss cancer. We must bring the subject out into the light for discussion, we must thoroughly familiarize people, in all suitable ways, with the early symptoms. In this education we will certainly find that avenues for instruction constantly open before us. We must earnestly impress upon the laity the fact that while there is no late cure for cancer, the disease is curable in its early stages in a great majority of instances. In this way, by patient, steady, constant work, the mortality and suffering are certain to steadily diminish. The aid of every physician in Colorado in this humane work is most earnestly solicited.

CHARLES A. POWERS.

THE JUBILEE VOLUME.

This memorial of fifty years of activity of the Colorado State Medical Society was completed and sent out just before the meeting of the Society at Colorado Springs; and the report of the Committee in charge of it will be found in the Proceedings of the House of Delegates. It will certainly win favorable comment from those in charge of the nearly 300 medical libraries to which it was sent, as setting forth briefly the history of the medical profession in this state and furnishing carefully arranged lists of their contributions to medical literature.

There are many questions, of name, date, history and place of residence, that will be settled by a glance in its pages; and the papers here catalogued will open up the literature of almost any practical subject in medicine or surgery. The papers and books here listed are those that the members of the Colorado State Medical Society are most likely to have heard, or read; and to which they are most certain to wish to refer when compelled to read up on some particular condition. As a catalogue of these papers that we want to know about, it is worth more to us than the more ambitious catalogues that attempt to cover the literature of the whole world.

Not enough copies have been printed and bound to supply all the members of the Society. Because it was known that some men would neglect to avail themselves of any opportunity to add, even so valuable a reference book, to their meager stock of medical literature; and the Committee tried to avoid any unnecessary expense either for the Society, that has paid for the copies sent to libraries, or the individuals who purchase the books at the price of \$4.50, just covering its cost. The edition will therefore be exhausted sooner or later, and each volume

will have a permanent value in money as well as for use.

The subscribers to the fund which made the publication possible have each received a copy, but some will care for more than one, for presentation to friends and general libraries. The Committee probably did right to set the price, to members who want the volume, as low as possible. But when all members have had this first opportunity to secure copies, it will be perfectly right for those in charge of the financial interests of the Society to raise the price.

Only those who have examined the volume and understand such matters will realize the amount of unpaid labor that has gone into its preparation. But those who know will appreciate it. The Society could not have put forth a more interesting, permanent and useful memorial of its early meetings and members, and their achievements in the domain of their chosen profession. The knowledge of this appreciation will be the reward of those who have labored, or given financial backing to produce our Jubilee Volume.

The volume can be obtained through the Secretary.

E. J.

THE PASSING OF A DISTINGUISHED SURGEON.

Dr. William S. Halsted, Professor of Surgery in the Medical Department of the Johns Hopkins University, died in Baltimore on September 7th in his seventieth year. Ripe in honors, working diligently in surgery until his very last days, he was in the front rank of those who have added most to the renown of American surgery.

Halsted was a graduate in arts from Yale, a graduate in medicine from the College of Physicians and Surgeons in the City of New York. In his earliest years after graduation he deservedly attained prominence in New York, being attending surgeon to the Bellevue, Presbyterian and other hospitals, connected with the anatomical and surgical departments of the College of Physicians and Surgeons. In 1889 he accepted the chair of surgery at the Johns Hopkins University. He was made a fellow of many foreign surgical societies; he received honorary degrees from many universities both here and abroad. He was a constant and able contributor to the best of surgical literature. He constantly added to the sum total of human knowledge. Perhaps it will suffice to mention here his original work on cancer of the breast, on the thyroid gland, on hernia, on the surgery of the great arteries. Few men have brought forth such distinguished pupils; among these we may call to mind Finney, Cushing, Bloodgood, J. F. Mitchell, Watt, Staige Davis, Heuer, Yates, Fisher and Dandy. Surely, a very imposing list.

The friendship between Halsted and the writer began in 1880 when the writer entered the College of Physicians and Surgeons as a student. Halsted was at that time one of the

demonstrators of anatomy, holding recitations in this branch. (The other demonstrators were Bull, McBurney, Frank Markoe and Richard Hall. All of these have passed on). Halsted was a remarkable teacher of anatomy. Pupils in his private class went to his office at nine o'clock in the evening two evenings in the week, being "quizzed" until eleven o'clock or twelve o'clock. His patience, steadiness, diligence and above all, his thoroughness, brought out the very best there was in those who were in contact with him. In after years this friendship ripened. The writer feels that he owes to this distinguished surgeon a deep debt of gratitude for his aid and encouragement in both anatomy and surgery, and in this spirit he feels it a privilege to render this slight tribute.

C. A. P.

ANTIVIVISECTIONISTS EMPLOY NEW TACTICS IN CALIFORNIA.

(From the California State Journal of Medicine, September, 1922.)

The Antivivisectionists. The antivivisectionists are at it again. They have an initiative measure on the ballot this fall under which you may not perform an experiment on an animal, even under anesthetic or without pain, if the purpose is scientific investigation, but you may cut an animal open, mutilate or burn it, painfully and without anesthetic, if the purpose is convenience in farming. The law expressly says both of these things, in direct language. Animals may be caught alive, in steel traps, or shot and wounded, for sport or profit; they may be killed for food, painfully; they may be branded with hot iron, to identify them as property, or dehorned, gelded, spayed, castrated or caponized, without anesthetic, for convenience or luxury, and there is no law against it. In fact, these farming operations are expressly permitted, in this language, by the law. But the surgeon with a delicate and perhaps new operation to perform may not perfect his technique by doing it first on an animal, even under complete anesthesia. No drug may be tested, by administering it to an animal, first. No serum, to protect children against diphtheria, or even to protect other animals against anthrax or hog cholera, can be manufactured or tested.

A human being bitten by a mad dog must die of hydrophobia since the only known treatment involves inflicting a needle-prick on a rabbit, and this is forbidden. The botulinus investigations, without which the California fruit-canning industry would be ruined, are forbidden. It is forbidden to investigate the poisoning of orchard pests or their extermination by their natural enemies, or even make experimental investigation of the diseases of plants. Present methods of combating anthrax and hog cholera are made penal offenses, and the treatment of diphtheria, lockjaw and meningitis by the methods approved by modern science are forbidden. The teaching of medicine, physiology and biology in the uni-

versities of California is made impossible. And a thousand other things equally absurd.

And all this, not to protect animals from pain—since animal experimentation is prohibited even when there is no pain, while the infliction of pain is permitted, if it is for other purposes—but to prevent scientific investigation.

The thing is almost unthinkably preposterous. No such law exists or has ever been seriously proposed in any civilized country. And yet there will be a real crusade for it, by people who think they are sincere, in California.—Chester Rowell, in S. F. Bulletin.

DR. HERBERT SNOW ON VIVISECTION.

Among the hundreds of thousands of persons who compose the medical profession it is inevitable that there are a few who are unworthy of their high calling. The percentage of unworthiness is as small in the medical profession as it is in any, and much smaller than it is in some, but it is nevertheless true that there is, here and there, a medical man of more or less prominence who is mentally, or even morally, unbalanced.

That this should be true in a profession numbering hundreds of thousands is not surprising. It is rather surprising that a defender of the anti-vivisectionists, writing in Denver, should have to go as far as London to find a medical man badly enough unbalanced to make the idiotic statement which the Denver writer attributes to Dr. Herbert Snow of the London Cancer Hospital. Dr. Snow is reputed to have said, "We regard vivisection not only as an outrage on morality but a gross hindrance to the progress of science."

This statement appears to have been quoted directly from page 30 of "Medical Opinions Against Vivisection," a pamphlet issued by the New York Anti-Vivisection Society. This pamphlet is published solely for purposes of propaganda and is a blend of misrepresentation and falsehood. It quotes Sir Charles Bell, Dr. John Elliotson and Dr. Charles Clay as eminent authorities opposing vivisection, although these men were all born in the eighteenth century, died before ether was understood, and knew nothing of modern animal experimentation.

Dr. Bell's fame rests upon his discovery of the functions of the dorsal and ventral roots of spinal nerves, which he was able to accomplish by his own experiments upon animals, and by that alone.

Dr. John Elliotson was not an eminent physician. He was a mesmerist, founded a mesmeric hospital, was born one hundred and thirty years ago, and knew nothing whatever about either animal experimentation or any other branch of real science.

Dr. Charles Clay—I beg your pardon, he was born in the nineteenth century, in 1801—was not an eminent physician. About all that authentic biography says of him is that he was "interested in geology and archeology and was a collector of fossils."

Dr. Herbert Snow—quoted in the same pam-

phlet as an opponent of vivisection—gave the evidence for the anti-vivisectionists attributed to him before the Royal Commission on Vivisection in 1906. Five years later, in a letter to the Philadelphia Ledger, he stated that he had given all his testimony "in utter ignorance of the vivisection question."

These are the bald facts on which I have not further space to comment.—Emerson Page, in Delta County Tribune, Sept. 1, 1922.

COUNTY AND CITY HEALTH OFFICERS ORGANIZE.

At a meeting of the House of Delegates of the Colorado State Medical Society a resolution was adopted encouraging the co-operation of the Society in the work done by the Colorado Health Officers, and arrangements were made whereby it will be possible to hold a meeting of Health Officers immediately before or during the annual meeting of the State Society.

The idea of such co-operation was well received by the members of the House of Delegates, and the resolution adopted unanimously.

It may be said that this was an act evincing the interest of this Society in public health work and demonstrating its desire to lend encouragement to the new organization of Health Officers which has been recently formed. Dr. T. R. Love, Secretary of the State Board of Health, has kindly furnished the following report of the meeting at which the organization was effected:

Health Officers from various counties and cities of our State and representatives from the Public Health Service, New Mexico and Wyoming, met September 30, 1922, in the new State Office Building following a call issued by the Secretary of the Colorado State Board of Health.

About thirty people were in attendance, including representatives from other organizations interested in public welfare.

Contemplating the formation of a State Association of Health Officers, a temporary organization was formed and the following committee appointed to draft constitution and by-laws for such organization:

Dr. T. C. Taylor, Ft. Collins,
Dr. Richard Russell, Arvada,
Dr. Stillman Woodward, Byers,
Dr. W. S. Bogart, Aurora,
Dr. W. E. Buck, Pueblo.

Enthusiasm was marked throughout the meeting and all those present expressed themselves as being greatly benefited, and were enthusiastic in regard to the formation of a State Association.

Papers were read by the following men:

Dr. A. B. Tonkin, State Health Officer, Wyoming—"Progressive Matters in Public Health Work in the State of Wyoming."

Mr. Harold F. Gray, State Sanitary Engineer, New Mexico—"Pollution of Streams."

Dr. J. W. Ames, Denver, "A Consideration of the More Obscure Causes of Infant Mortality."

Dr. C. W. Thompson, Superintendent Woodcroft Hospital, Pueblo—"Mental Hygiene in Its Relation to the Public Health."

Dr. S. R. McKelvey, Director, Division of Venereal Disease, Colorado State Board of Health—

"Practical Operation of Venereal Disease Propaganda."

Mr. Sim H. Loeb, State Food and Drug Commissioner—"Co-operation."

Dr. Wm. H. Sharpley, President, Colorado State Board of Health—"Review of Statistics on Contagious Diseases."

Mr. H. B. Hommon, Sanitary Engineer, U. S. P. H. S.—"Contamination of Water Supplies with Particular Reference to Oil Refinery and Creamery Waste."

Dr. W. F. Worley, Passed Asst. Surgeon, U. S. P. H. S.—"Tuberculosis."

Prof. J. B. Ekeley, State Chemist, Boulder—"Simple Method of Chlorinating Water Supplies."

Dr. Wm. C. Mitchell, State Bacteriologist—"Diphtheria and Its Relation to Public Health." Also showed work being done in State Laboratory.

The papers will appear from time to time in print so that all may receive the benefit of them.

STATE BOARD OF HEALTH NOTES.

"His Acts Being Seven Ages."

The seventh age:

"Last scene of all,

That ends this strange eventful history,
Is second childishness, and mere oblivion;
Sans teeth, sans taste, sans everything." Including his appendix.

"Of no distemper, of no blast he died,
But fell like autumn fruit that mellowed long;
Even wondered at because he dropped no
sooner,
Fate seemed to round him up for four score
years,

Yet freshly ran he on for ten winters more,
Till, like a clock, worn out with eating time,
The wheels of weary life at last stood still."
(Milton).

If autopsies were compulsory or commonly performed, what wonderful progress would be made. Diseases not suspected would be made plain, diagnoses be confirmed or refuted, surgeons avoid mistakes in the next case, organic changes of old age be noted, etc.

The viewing afresh of the viscera by the doctor would be refreshing and an aid to his diagnostic acumen.

If medical men who have the affection and confidence of their patients and families would tactfully insist on postmortems, many could be secured.

The discussion of the final disposition of the dead body might be of interest. Bearing in mind the fate of a medical man who essayed to discuss religion, I am going to be careful and cautious. You will remember the fate of one Dr. Servetus who was rash enough to write on religious subjects during the time of Calvin, and you know the result—it is said that he was ordered burned at the stake, and wet wood was used to prolong his agony.

So I am not going to venture on a discussion of the resurrection, but to inquire as to

the most sanitary method of disposal of the dead. But before I do so I want to know who ate Roger Williams? When he was buried, an apple tree was planted at the head of his grave. After a hundred and sixty years his grave was opened and, lo and behold, the apple tree had sent down its roots following along the body, thence dividing at the legs and so on to the feet.

The grave was completely emptied, hence I ask, who ate him?

The arguments used by the old writers favoring incineration where they ascribed pestilence and plague to the presence of graveyards have long ago passed into the discard, but there is the matter of expense that should be considered by those who set the styles. Many a widow has impoverished herself by the expense she went to, to show her respect and affection for her husband after he was dead, rather than before.

We wonder if the old fellow of whom we have been discoursing for the last seven months and who under our advice has lived so long and happily, will come back and tell us all about it?

"Strange, is it not, that of the myriads who Before us passed the door of darkness through, Not one returns to tell us of the Road Which to discover we must travel too."

Old Omar wrote over seven hundred years ago and much water has flowed through the irrigation ditches since then. Now psychic research with its apparitions, movements of objects, telepathy, clairvoyance, premonitions, foresight, automatic writing and trance control, gives us pause; and we are constrained to wonder if under all the fraud there may not be something? It may be only natural phenomena of which we are ignorant; I shall maintain a judicial mind, if possible.

The old man, under the guidance of modern science, like the famous "one hoss shay", ran one hundred years to a day—or was it ninety?—and then went to pieces one part just as strong as the other. That is the "consummation devoutly to be wished".

Incineration is the plan par excellence of disposal of the dead, doing in a few minutes what it requires years for nature to do. It is effectual, cheap and sanitary. What more do you want?

Epitaph.

Here lie the ashes of our actor friend,

Whose seven ages we have much discussed
And as the hurried tourists o'er them bend,

Take notice that we will not have them
mussed.

For Bacchus and for Venus he'd no use,

And loudly Lady Nicotine he hissed.

How tiresome he, with always an excuse,

And think of all the fun that he has missed!

J. W. M.

Original Articles

PRACTICE BY ASSOCIATION.*

J. CRUM EPLER, M.D., PUEBLO.

It is a great honor that has come to the reader, that of being your President for the coming year. It is an honor to be permitted to address you on a subject of his own choosing—a subject that is of such moment to his mind that it appears paramount to any he might have selected from the broad field of medicine or surgery; and, as he brings before you in an humble way the plan by which the public, the patient, and the doctor himself will be benefited to a degree now beyond belief, you may know that he is speaking from the heart and with a sincere desire to gain for all such benefits as the science of medicine has to offer.

For several years, certain individuals of altruistic tendencies have sought a plan whereby the great wealth of professional achievement in diagnosis and treatment might become available to the public as a whole, special emphasis having been laid on the needs of the smaller towns and scattered rural communities. This scheme, fostered by much promotion literature and highly embellished propaganda, has been called "State Medicine".

As understood by the writer, the plan is beset with so many impracticable features that it is almost heresy to consider it other than a useless effort towards the end it is purported to serve. It is frankly socialistic; therefore, un-American. This paper will not deal further with the subject.

As medical men and women, we must admit that a need exists for better medicine. This is a frank statement and one inviting many qualifying remarks, but to state that the existing regime of medical affairs as it relates to the greater portion of our populace is good enough, is but dodging the issue and stating what is not true. To the public, and this means men, women or children as individuals, and not as a mass, is due the best that medicine has to offer. At the present time there is no universal way of securing it. Our old families or our individual patients, each of whom should be a sacred charge, cannot always discriminate between the loud-talking, self-advertising practitioner and the hard-working, competent, well-read medical man who is attempting to the best of his ability to cover the whole domain of medical science and prescribe it in its appropriate manner and classification. That he fails to do this is not his fault, because he may be wearing himself to the very bone in his endeavor. So, as a remedy, as a cure if you choose to so call it, the plan of practice by association, or Group Medicine, is suggested.

Practice by association is applicable in cities, small towns or communities where two or more physicians are practicing in jealous competition.

To organize and maintain the group plan of practice seems to be the perplexing problem. It

*Presidential Address delivered at the fifty-second annual session of the Colorado State Medical Society, October 3, 4, 5, 1922.

will not be difficult if physicians who possess a conscientious desire to make their worth felt in the commonwealth think for a few moments in terms of their duty to the community and themselves.

One cannot lay down hard and fast rules for the forming of groups. Each locality, each coterie of men, great differences in ages, differences in experience and social prominence, will make each group an individual problem. If, however, the men concerned are earnest in their wishes to give better service, are honest with themselves and their associates, they will inspire an organization which, by specialized effort on the part of each individual, will be productive of results impossible of attainment by any single practitioner. The matter of personal compensation in such an association is of vast importance. Again no rule can be laid down. Experience has taught that a definite arrangement should be made covering a stated period wherein each member of the group shall receive a certain percentage of the net earnings. This may be changed from year to year as conditions warrant. After a short time, it will be found that a general tendency toward equalization exists.

There is a limit to the mental and physical ability of man. In the beginning, it was early recognized that an individual could not master all things, neither did he have physique or time to apply his knowledge of them, so the artisan of the Stone Age arose, the cultivator of the soil, the herdsman, and the healer, and each of necessity became a special man. By and by, these became subdivided because of the knowledge required of each artisan, and, during the long ages of evolution, the once called healer has gradually acquired tangible scientific facts whereby he may recognize the malady and apply rational treatment, free from isms, pathies, cults, conjury or absent treatment.

It is an axiom of economics that "need creates demand". Need may not be universally apparent, though present, which fact is due to ignorance of the users of the service needful. The great business men of all ages have been those who early recognized need, and anticipated demand. To-day is one of need for better medical applications, and the demand is coming through a once lethargic public now awakening to the fact that there is a great wealth of scientific medical knowledge not being universally used. The profession must anticipate and meet this demand. Even at the present time, the demand is greater than the supply. To repeat it in a more kindly way, the demand for high grade medical service has increased beyond the ability of a busy profession to give. You may ask "Why?", if you speak before you think, but the answer is obvious. It is due to the failure of many members of the profession to use the better recognized methods for diagnosis and treatment available. This has caused the laity to lapse into a habit of self-experimentation, and, unless the public demand for comfort and health be met, with practical application of suitable methods and satisfactory results, we must expect it to resort to such so-called systems or cults as will make their luring promises the most vivid, regardless of whether the

guarantees are substantiated by satisfactory end results. Naturally the reader knows full well that a percentage of people demanding something occult or mysterious in its nomenclature or claims will always exist. There will still be a percentage that will permit its neck to be twisted until it cracks, or that will have its spine kneaded in the vain hope of establishing neural balance, while another will consult the spirits through the aid of the so-called medium, and perhaps be referred to some unscrupulous practitioner who will fleece him well and pay a percentage to the medium. While we cannot be held responsible for all the results of our failure to relieve a suffering public, we must accept the blame in part, for we have failed to apply to the fullest extent that which our art and science has to offer, and, further, we have failed to provide, to sufficient extent, educational propaganda along the line of legitimate medical effort and achievement.

The profession recognizes that claims for efficiency must be well grounded; that a specialist of our day must be prepared for his work with thoroughness. It is not enough that one designate on his office window that he is a surgeon, a specialist in diseases of men or women, or an oculist and aurist; one must show qualifications sufficient to justify such claims. He cannot be a general man and lay claim to the distinction of specialist. The universal specialist has gone forever. He, like Mark Twain's Fennimore Cooper Indian, is "a member of an extinct tribe that never existed." He is indeed fortunate who may feel himself abreast of the times in a single subject. He who lays claim to proficiency in all is either a paranoid egotist, or a rank charlatan.

The medical profession now tabulates about twenty special lines. Each of these holds many writers of note, who constantly bring forward the newer methods and discoveries, some in magazines and books devoted to special lines, others in standard text books and magazines of general type. In the face of this, how can it be supposed that any physician, that any general practitioner, can absorb more than a small part of the theory and practice of modern days when his work covers every branch known to medical science.

It should be understood that this paper is neither a plea for, nor a defense of the existing specialist, but a plea for more special knowledge on the part of the general practitioner.

How then may the defects in modern day practice be remedied? The answer is an effort to the end that it may at least be bettered, and is obvious: "Practice by Association" or "Group Medicine" if you will so call it. Group practice has been censured by men who have had little to do with it except to sit outside and wonder what is going on inside. A noted internist of Chicago, once an ardent advocate of the group method of practice, is now an opponent. Still this internist finds it necessary to gather about him a great number of associates and technicians. Why does he have these if the system is wrong, or, if they are nonessential? His own act traverses his criticism.

A modern hospital has its specialized staff, and patients are referred from one special department to another. Why is this necessary? Why does

not the first physician the patient meets do it all? Occasionally a patient will ask why, but such are few in number when compared to those asking the same question three years ago.

The present age is one of rapid advancement in all lines, invention, business and science. Business is conducted upon a scientific basis. The financier, the economist, the statistician, the trade expert, the publicity man, the sales manager, the efficiency inspector, all cover highly specialized fields, and the business world knows it. No informed person will assert that the science of medicine has failed in proportion to the advance in the science of business in this era of great progress. Well he knows it has advanced far beyond the conception of the public. It has also advanced far beyond the ability of the individual physician to grasp and apply with efficiency.

After all, specialism is but relative. One arrives only at such stage of perfection as his inclinations, opportunity, and ability permit. The "natural-born" doctor is a relic of bygone ages, and lies in the discard with the universal specialist; while specialists, even in comparatively limited fields, find it necessary to consult with one another.

As has been said, the public does not know how to select a doctor, for, while an intelligent business man would never go to a tailor for a hair cut, he may occasionally overlook a good doctor and take a ticket full of treatments from a chiropractor. The individual passes judgment on his medical adviser in his selection for service. This choice is made from one or more of many reasons, such as appearance, fluency of language or affiliations of some kind, or because recommended by some neighbor. Ofttimes this results in a poor or improper selection for the kind of service needed in the given case. Such a condition of affairs is due to a lack of frank propaganda on the part of the competents, or because of the wily and cunning advertising of the incompetent. The doctor is rated by the public, and he prospers accordingly whether he puts a full measure of scientific effort and energy into his work, or whether he drifts along satisfied to rise no higher in his professional task than his geniality will carry him. Practice by Association will efface this last type of medical parasite because it will place him in closer contact with other physicians where professional matters are thrashed out in minute detail.

Let us hark back to our own early days of practice. Most of us will readily recall the fact that we were potential specialists. But few of us failed to have in mind a future in a special field of our choosing. Some of us believed we were to become great surgeons, great neurologists, great ophthalmologists, some even believing that dermatology was their chosen field. But we went into general practice, and, while the intent to specialize was ever before us, the daily work demanded, the expense to meet, the growing home, and, as we became established, the many outside interests claiming our attention kept us from approaching our ideals.

With McCormick's words in our minds, which are to the effect that all doctors are splendid fellows except those in our own town, let us assume

that possibly those in our home town may bear closer association than we have heretofore permitted ourselves to believe. With this thought paramount, the procedure of organizing a group should be easy.

The preliminary task is mainly that of conferring upon the subject with as many medical brothers in your locality as is possible. You may find that Dr. B. who has been doing considerable surgery has no liking for it. He has been obliged because of necessity of making every dollar possible, to accept many surgical cases. He feels that he is shortening his days by sleepless nights brought about by his postoperative anxiety. There has been no one to whom he might turn for a lessening of his burden. His idea has always been that some day he would confine himself solely to the care of children, in other words, he desired to be a pediatricist, but his lines having fallen in foreign waters, he accepted such tasks as came.

Again you may find among your regional conferees a man desiring to become an oculist and aurist, and, as you go into his office probably for the first time in your life, you discover that his library contains a preponderance of works upon his favorite subjects; but he too is doing general practice. With the few cases that come to him he is endeavoring to prepare himself in his desired field. He has been unable to avail himself of postgraduate work, and feels each day a distinct sense of regret that he is obliged to do general practice. Doubtless his efforts would be more successful, pleasant and profitable were they directed along his desired lines.

One may call in one or two of his professional colleagues. The matter is talked over, based wholly upon the desire to so improve themselves as to be able to give better service to their patrons. Soon these men will become better acquainted. This acquaintance will develop into a close friendship if based on honesty of purpose. Any who cannot subscribe to this regime will drop out, and the friendly ones will invite others to whom it is believed the plan will appeal. They will be honest with each other, and accordingly settle their differences, for, after all, there are no differences except misunderstandings that may have existed for years. An honest, straightforward direction of purpose and a little time will heal these vaporous wounds.

At further meetings bring about the organization of the group method of caring for the sick. Include in this every dependable, reputable and conscientious physician in the locality who can think in terms of better service for his clientele, together with one or two of the best dentists. Once this agreement is entered, and the joint work begun, the first thing accomplished will be a unanimity of purpose for the best good of all—physician and patient.

It is not wholly necessary for each of these physicians to confine himself strictly to a specialty, unless the group is sufficiently large and the demand great enough to justify it, but it is all-important that each member make a study of a different special line in order that he may consult with his colleagues in intricate and obscure cases. An association of general men, each gradually fit-

ting himself along a special line, will appeal to the public, and will be rewarded by the people's appreciation of an effort to give them better service.

The method of grouping demands that all offices be in one building, and in as close proximity as possible. All equipment must be pooled, and new appliances bought by the group. Clinical laboratories and Roentgen ray plants, previously absent, will be supplied in one of each kind, and such other necessary appliances for diagnostic ends will be acquired as the size of the group may justify, as group property. One telephone will be maintained in the group's name with suitable switchboard having a competent high-classed office woman in charge. One set of books will be maintained under charge of a competent bookkeeper, who will look after the accounts, purchasing and paying bills. He should preferably be a layman, and bear the title of secretary, and should assume full charge of the business details of the association, under direction of the members. Experience justifies the belief that each physician should be a bona fide member, with a vote in the group's deliberations, and should participate in the net earnings upon a pre-arranged percentage basis, which may be changed from year to year as occasion demands. The elimination of salaried physicians thrusts a responsibility upon each member to the end that there is none who is only "pay-day" interested, and also relieves a tension between duty and compensation, so often seen in those now holding city and county offices.

The professional advantages of such an association of physicians are many:

It has been the reader's observation that men practicing in groups are happier than those practicing individually; they are able to see many more patients, and interest is accordingly increased. When a physician who practices alone absents himself from his clientele, that time is lost to him from the standpoint of money. Remaining all the time at home is a loss at the expense of professional advancement, and the best public service; therefore, it is evident that the group plan will permit the practitioner to obtain recreation and invest himself with new ideas gleaned from personal contact with other physicians. A close association of physicians encourages the free and frank discussion of interesting and important cases. This, in turn, will encourage reading and inculcate a mutual good feeling between the physicians so engaged, grant an opportunity for each to do annual post-graduate work along his chosen line with the comforting knowledge that the welfare of his patients is safeguarded, and that he is doing this work without loss of income. Last but not least, the result of the plan is to give a stronger, a better medical service to the community.

By the group method no member lays claim to the individual patient. The organization has the patient's welfare at heart. Each and every member works for the common good of all patients who consult the group, and takes his colleagues into confidence in all cases that are not clear. Discussion incident to these cases will be produc-

tive of much professional good and go to benefit the public.

Once a group is organized, it will, of necessity in carrying on its business of collective service, demand a hospital. If there be no hospital, it will come when the professional efficiency cannot be further advanced without it and this fact is shown to the people. Should a hospital be in existence, it will be improved at once, and its standard raised, because men desirous of doing better work will demand efficient hospital service.

The group plan will place in the community a greatly improved profession, together with hospital service comparable with that found in larger medical localities. The benefits of the group plan to a given locality and small towns are obvious, but still there is a great percentage of people who must be served by a physician practicing alone. It may appear that this plan will be of no benefit to a solitary rural practitioner, but certainly the lone doctor will be thrown in closer touch with advanced methods and may consult with such an association of physicians. To carry this thought still further, it is believed that a community which will now support but one physician will support, at least, two, if they will associate themselves and endeavor to introduce and utilize more of the great wealth of professional scientific knowledge than is now generally being utilized. This association will permit each to take ample time for recreation and study. How often have you heard a physician excuse his absence from some gathering of medical gentlemen on the ground that he could not get away, having no one to leave his practice with; that business was such in his locality that if he were to leave, his competitor would secure a part of his business. It is presumed that the patronage would go to his competitor willingly during his absence. Why then not group all competitors and eliminate that fear? Frequent and regular association with one's professional friends is quite as essential for advancement as a plumbers' meeting is for the craft.

Some will argue that grouping will demand higher fees. This is granted, but need not be considered an obstacle, because it will be the result of better service. The public never objects to paying the price provided it receives the service it demands. There is no better evidence of this than when a patient is referred to a specialist, who diagnoses some intricate malady, charges accordingly, and is paid gratefully. Charges commensurate with good service will be more cheerfully met than a smaller fee asked for the usual tongue inspection and pulse count of the doctor of well known type who lends his ear to all the neighborhood gossip, and who prescribes placeboes when he does not know, and must wait to find out without the aid of accurate medical knowledge. Practice by association is recommended solely for the good of the public. It must not be considered one beset with great pecuniary benefits and no work. It is an arduous job, but a method of practice whereby red-blooded men and women may do the most good for the largest number and by such association become broadened and better equipped ministers to the sick.

Much has been written of late on the training necessary to become a specialist. All specialists

who have so written have made plain the great necessity for general training before entering their own sacred zone. Then, in the case of community physicians combining for group medicine, the first requisite has been acquired. It is not presumed that the man doing special work in a small rural community, at first, will be as great as the big city specialist with a hat full of degrees and an office full of machinery, but it is presumed that he will, by a short course and special study, reading, if you care to call it that, be sufficiently equipped to meet the average emergency of his particular field and hold his unusual patient in hand until a more competent man may be summoned, or the patient sent to him. But as months roll on, and more work in the special branch is done, and more experience gained, in a marvelously short time excellent work will be the result, and again, the community gains.

Practice by association, or group medicine, is not for the individual medical person who is so enveloped in his cloak of professional assurance that he knows he surpasses his local confrere in ability, training, appearance and income. It may frankly be said that one may make more money outside of group practice, but he cannot do it with the knowledge that he is giving the best that is possible for him to give, for alone, in the big general field, he can do well if he is able to diagnose half of the real cases encountered, even when one excludes such things as the common maladies, every day met with. He may sit here now and deny this statement, but he has had no mind to check him. He has had nothing but his "pretty good guess" to tell him when he has been right and when he has been wrong. The lay courts require twelve men, good and true, to decide on carefully prepared evidence presented by expert lawyers, and presided over by a judge to maintain the order of the procedure and to administer the law—in other words, to give treatment when the final diagnosis has been made. But our solitary practitioner may sign his death certificate with all outward assurance, while his conscience may be telling him that he didn't know. Nor is group practice a thing for the lazy man who cares not for reading and keeping abreast of the times, nor for the man who thinks of his fee first, and his service next. In fact, group medicine is but for those who have honesty of purpose, who have desire for ideal conditions, who fear not work when it is for the good of the sick, and who place duty first and compensation last. Duty to our patients is our only beacon light, and, unless that be kept brightly burning, we are failures in the sight of Him who healed by His divine power.

Our work must ever go onward, for completion is impossible. The words of Longfellow tell us,

"Labor with what zeal we will,
Something still remains undone.
Something uncompleted still,
Waits the rising of the sun."

So we who have chosen for our road the paths beside which lie the sick and weary, should look well to ourselves lest we lag in their hour of need.

Let us see our duty only in giving the best there is of us to those whom it is our place to serve.

OUR LESSENING MORBIDITY FROM CHRONIC DIGESTIVE DISEASES.*

J. N. HALL, M.D., DENVER.

In times past chronic gastritis has been called the great American disease. The reasons for our unenviable pre-eminence in this regard probably lie near the surface. We doubtless had our normal share of peptic ulcer, cancer of the stomach, gallbladder affections, appendicitis, et cetera, but these troubles alone could give us no leadership in digestive morbidity over other peoples. Our conditions of life undoubtedly contributed the great factors in increasing our gastronomic difficulties until they were more notable in every way than was the case amongst the inhabitants of older and more settled communities.

Amongst those hardy pioneers whose restless energy has in a little more than a century tamed a continent, and carried the general standards of living to a point far in advance of that enjoyed by the peoples of any other continent, there was scant time for the development of the arts of cookery. Not only has food been badly prepared in large sections of our country, but the almost universal habit of eating in haste has been a notable factor. The free use of strong distilled liquors, especially upon an empty stomach, instead of the milder wines and beers of other countries, the at times inordinate consumption of iced drinks, wholly unattainable in most of the world, the evils associated with the phenomenal development of the soda fountain, the soft drink parlor and the confectionery shop, have all helped along the evil tide.

Certain acute diseases have in the past been more prevalent in the United States than in those communities where hygienic precautions and sanitary engineering obtained an earlier foothold. They have played a great part in the multiplication of our digestive disorders. Our former enormous typhoid rate was certainly responsible for a great increase in gallbladder disease, with its destructive effect upon digestive function. Even at present, more than half of all our gallstone cases have a history of previous typhoid fever. The chronic hepatitis and splenomegaly following chronic malaria and the deleterious after effects of yellow fever, dysentery, hook worm disease and other affections have all added their contributions. Happily we have good reasons for believing that the above mentioned factors, which have in the past raised our morbidity from gastrointestinal affections above what we may term a normal point, have become less and less effective in recent years. The phenomenal improvement in our hygienic, economic and social conditions has not only reduced our general death rate but has, in much greater degree, lessened the morbidity rate from acute diseases. This rate has decreased at the same time that the mortality from senile and degenerative diseases has increased.

It would seem reasonable to assume under all

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these conditions that our digestive diseases in the United States at present stand at about the normal figure of prevalence, excepting as they may be influenced for the better by preventive medical science.

We may easily offer proof of some of the changes which we have thus far considered. To the older practitioner, who annually spent much of his time from August to December in the arduous care of a long list of typhoid fever patients, the virtual disappearance of the disease constitutes one of the wonders of modern medicine. I have seen more cases of typhoid in one day than I have seen in all of the past ten years. We are already beginning to observe the lessened frequency of rheumatic fever and of its devastating sequel, valvular endocarditis, as the result of the widespread and most commendable campaign for the removal of diseased tonsils.

Similarly, in the digestive field, which we are considering today, we can scarcely realize, until it is directly brought to our attention, that certain causes of death have shrunk to a mere shadow of their former proportions, because of early recognition and cure of those conditions which, neglected, start the patient along a grisly path to disease and death.

Thus, during my term as house physician in a great hospital, back in the dark ages of modern medicine, we listed in the annual report of the causes of death several hundred cases annually of acute peritonitis. With advancing etiological knowledge, this term has been dropped from the list, and probably at least ninety percent of the deaths included in such former reports are now prevented by early operation upon those affections which we formerly recognized only after general peritonitis had developed.

Formerly half of all reported cases of subphrenic abscess were attributed to gastric and duodenal ulcer. Earlier recognition and better surgical treatment have nearly eliminated the cases of this origin.

The instances given are but the beginning of the story. We shall attempt to indicate how similar, even though less spectacular improvement may be expected in other directions.

This cannot be properly done without a careful consideration of the intimate inter-relationship existing between different digestive diseases—too often thought of by clinicians as entirely separate entities.

Let us begin with one of the commonest affections of the digestive tract, the chronically diseased appendix. We shall assume that it is one of those with a clubbed extremity and a fecal concretion, recognized everywhere as especially likely to be associated with gastric symptoms. If we intelligently, and without that narrow prejudice which prevents many clinicians from seeing the truth when it stands naked before them, follow the course of the many troubles which may start from the diseased condition of this insignificant and obsolescent organ, we may almost believe that the Apostle had it in mind when he said, "Behold, how great a matter a

little fire kindleth." As a result of low grade inflammation about it, with frequently acute exacerbations, thickening of the peritoneal folds in the neighborhood, kinking of the mesentery, distortion of the relationship between the ileum and the cecum, even the formation of a definite Lane's kink, or formation of certain types of membranous adhesions may and commonly do develop. Because of the interference with peristalsis, intestinal stasis ensues with the chronic toxemia we so often see. I go so far as to state that no patient should be treated for chronic constipation without a careful examination of the abdomen for one of the most frequent of its causes, namely chronic appendicitis. I treated one patient who had not had a normal fecal movement for more than twenty years because of this condition. The simple removal of her diseased appendix reestablished a proper intestinal excretory function, which has continued for a dozen years. Her improvement in weight and appearance was such that I failed to recognize her when I next saw her, although I had known her well for ten years.

When I am asked to examine a patient with chloasma, which young women, under the name of "liver spots", attribute to disease of the liver, I almost invariably find such a type of constipation as that described above. With appendectomy and the re-establishment of normal emptying of the bowel, the discoloration commonly clears up in a few months. Young persons so afflicted very often go on, as I have noted in scores of instances, until from toxemia and malnutrition, a chronic neurasthenic state supervenes. Unfortunately, if this has lasted long enough and advanced far enough, there is little hope of cure by operation.

The long continued chronic constipation originating in the chronic inflammation in and about the appendix is a notable contributory factor in the development of diverticulitis and hemorrhoids. The floating right kidney so often accompanying this condition is at least in part due to the loss of abdominal fat and the general weakening, from poor nutrition, of the renal supports. The professional ignorance which for so many years led to the diagnosis of chronic ovarian disease in this class of cases has, fortunately, been pretty well dissipated by the spread of diagnostic knowledge. Yet I have just seen an intelligent woman who for twenty-five years has suffered from such an incorrect diagnosis and the consequent failure of correct treatment. We assume that in all these cases proper steps are taken to exclude diseases of the kidney, ureter or adnexa.

Let us next consider the effect of the chronic appendiceal irritation upon the stomach, and notably upon the pylorus. In scores of cases we have felt the thickening of the gastric outlet due to long continued spasm and hypertrophy of the muscle from such a cause.

By the x-ray examination marked delay in emptying, and an absence of the signs of gastric or duodenal ulcer are to be found. It is in these cases that we so often see gastric ulcer so exactly simulated. The time incidence of pain is

much less exact and there is no definite food relief. Blood is commonly absent in the gastric analysis. Upon physical examination there is very frequently found a dilated and splashing stomach, but little tenderness or rigidity in the epigastric region. The presence of these signs over the appendix, and with rather remarkable frequency, far to the right, and associated, as we learn at operation, with a pathological appendix outside of the cecum or behind it, is the rule. The demonstration by x-ray examination of ileal or cecal stasis and frequently of a segmented appendix, or one showing other obvious evidence of disease, is usually conclusive. Such a diseased appendix may not only lead to the simulation of ulcer—it may well, through the long continued hyperacidity which it induces, contribute to the development of ulcer. In several hundred gastric and duodenal ulcer cases operated upon by our Colorado surgeons in the past twenty years, I have been greatly impressed with the frequency of the finding of an accompanying diseased appendix. One of the very strongest reasons for advising operation upon ulcer cases which do not do satisfactorily under medical treatment, is to make sure that an underlying chronic appendicitis does not constitute the real reason for the failure.

In yet another way trouble may follow. The ulcer, which has originated in part at least because of the chronic hyperacidity caused by the diseased appendix, may after years of invalidism end in carcinoma. In my experience enough cases of incipient cancer developing at the margin of peptic ulcer will be found and surgically cured to offset the usual mortality rate of the operation for ulcer. A melancholy class of patients goes from one doctor to another—those in whom, after years of reflex over-stimulation of the gastric glands under the influence of the chronic inflammation of the appendix, the secretion of hydrochloric acid practically ceases. There is no such favorable prognosis after operation in these subjects as in those with marked hyperacidity. Yet they have had perhaps five to fifteen years of daily admonition, through their constant acid indigestion, before they fall, by disregard of the warning, to this low estate.

The frequency of the association of chronic gallbladder disease with chronic appendicitis is notorious, and ulcer is not a stranger at the meeting. I saw one patient in whose case one physician, because of the repeated occurrence of colic and jaundice, correctly made a diagnosis of gallstone disease. Another physician, with equally good grounds for his opinion, sent her to me with the correct diagnosis of duodenal ulcer. I found in taking her history that she had had repeated attacks of acute appendicitis twenty years or more before the stomach symptoms developed, and perhaps a dozen years before her gallbladder gave evidence of disease. Upon operation all three of the diseases were found, and she made a complete recovery. One might be excused for desiring an early and simple operation upon the appendix rather than twenty years of invalidism and three more serious operations later, but many patients and even some

physicians fail to take this view. The intimate relationship between the appendix and the liver and gallbladder through the portal system may well explain the frequent concomitance of disease in both regions.

Those of us who have frequently seen at post-mortem examination multiple metastatic abscesses scattered through the liver, with an appendiceal abscess as the source, can well understand how a much milder and more chronic infection may travel along the same pathway.

But our troubles do not stop here. From the original source of infection in the appendix we may have the cholecystitis described and then later a whole train of evils originating in the gall passages themselves.

In the first six months after my return to Denver, in the spring of 1919, after a two years absence, I had four patients operated upon who proved to have hopeless cancer of the gallbladder. Even the loss of two years time in such cases probably took them entirely out of the curable class.

We must speak for a moment of the most elusive and most dangerous of all the varieties of appendiceal disease, the retrocecal form. Cushioned from direct contact with the examining fingers by the air-distended cecum, and with the accompanying rigidity and tenderness so far to the right of—even behind—the cecum, the true condition is frequently overlooked. I have seen several dozen hepatic abscesses, subphrenic abscesses or hepato-pulmonary abscesses resulting from failure of early diagnosis and treatment of this affection. At least two-thirds of our present subphrenic abscesses probably arise from this cause.

We have spoken thus far of the troubles which may and often do originate from the diseased appendix. But, of course, a majority of gastric, hepatic and pancreatic troubles arise entirely without the precedent appendiceal affection. We may have a whole train of diseases starting from the stomach itself. Thus, in connection with a nervous hyperacidity we may have an erosion with serious or even fatal hemorrhage, or a chronic indurated ulcer with the added dangers of perforation, deformity of the antrum or the pylorus, hour-glass stomach, or cancer. The ulcer which does not manifest after a reasonable time of proper medical treatment, by cessation of its symptoms and roentgenological demonstration of its healing, that it is no longer active, should not be allowed to continue its malevolent pathological changes, but by proper surgical procedures should be placed under control.

Omitting the single complication of cancer, the duodenal ulcer has even greater possibilities of making serious trouble than has the ulcer of the stomach. The dangers of hemorrhage, perforation, deformity with partial obstruction, or secondary developments which compromise the function of the gallbladder or of the pancreas should be noted.

How many of those present have failed to observe cases of chronic cholecystitis which have been allowed to go on year after year, in spite

of abundant warnings of the seriousness of the disease, even to a disastrous end.

The patient who has any combination of the following symptoms is in danger of yet more distressing illness, and operation should be recommended unless some strong contraindication exists. These symptoms are generally somewhat as follows: pain, either of mild degree and more or less constant, or more typically as hepatic colic; indigestion, notably with gas and hyperacidity; attacks of slight fever, with mild jaundice and clay-colored stools, due as often, probably, to inflammation within the ducts as to the mechanical effects of gallstones; or tenderness over the liver, often with perceptible enlargement.

The x-ray examination does not generally give us the definite evidence of gallstones, for two reasons; in many cases, stones are not present, and in probably half of those remaining the stones contain so little lime as to be invisible. Yet the heavy shadow of the thickened gallbladder, the delayed emptying of the stomach, or the deformity of the duodenum give us dependable evidence, the more so because the same procedure has excluded ulcer and cancer.

If the attendant permits his patient to run by the danger signals we have mentioned, he should at least have vividly in mind the perils to come. The infection may spread to the hepatic ducts, especially after the development of obstructive jaundice, with fatal cholangitis as the final result. The chronic inflammation in the gallbladder may take on an acute activity, with gangrene or perforation. The long continued presence of a calculus in the common duct may eventuate in the vicious syndrome associated with the "ball valve stone", with chills, recurring jaundice, and, unless relief comes through operation, a fatal result. Ulceration followed by stricture of the duct is not unusual. Extension of the infection to the pancreas is to be expected in neglected cases, while cancer of the gall passages or the head of the pancreas is a not uncommon terminal development. Surely, one may better choose an early and simple operation with a mortality rate of perhaps only one percent, than years of invalidism with such possibilities as those pictured above.

We can speak with less assurance as to the usual diseases of the pancreas. They are less clean-cut in their symptomatology and promise less by medical or surgical treatment. In suitable cases early operation may offer the best chance.

Ever since mucous colitis was segregated from the other affections of the intestinal tract its treatment has been approached by the average physician with about the same degree of enthusiasm as would be manifested in treating a case of advanced arthritis deformans. This should not be the case. The disease frequently follows long continued chronic constipation dependent upon partial mechanical obstruction. This involves as a rule the region of the appendix, the cecum and the ascending colon, although any portion of the large bowel may be affected. Only a select few of these cases are operable. Every

precaution should be taken to make the diagnosis as exact as possible, the x-ray examination being absolutely essential. Where definite stasis is established the surgeon trained in this work may by resection, short-circuiting, or other procedure occasionally bring about an astonishing cure, as in a few of my cases. It is probable that further study will enable us to cure a considerable proportion of these cases surgically, and greatly ameliorate the condition of other cases by medical treatment.

Constipation is one of our most frequent diseases. Many of the severer cases are cured by operation upon a chronic appendicitis, correction of a Lane's kink, restoration of a retroverted uterus, prostatectomy, or other comparatively simple procedure. It is to be expected that cases due to ptosis and angulation of the colon, and similar defects will eventually come within the ordinary field of surgical intervention.

A depressing group of patients come to the physician complaining of obstinate constipation, with pain, rigidity and tenderness in the lower left abdomen. We think of chronic diverticulitis, ptosis of the sigmoid, or old adhesions exaggerating the sigmoidal curves and preventing proper peristalsis. The x-ray is of decisive importance in the diagnosis. In women the examination of the pelvic organs often reveals old inflammatory trouble in the adnexa. The end results to be most feared in these cases are perforative diverticulitis and cancer. Again, we should take a small surgical risk early rather than a desperate one after years of suffering.

We see another class of patients of uncertain diagnosis, which, in this state especially, gives us much concern. These are commonly young individuals, usually emaciated, frequently giving a history of tuberculosis or of a tuberculous heredity. Slight fever, mild diarrhea, gaseous indigestion and abdominal distress complete the picture. Until the accumulation of fluid in the abdomen leads to a diagnosis of tuberculous peritonitis we are likely to temporize, suspecting mesenteric glandular disease but not sufficiently confident of it to recommend operation. The advanced stages of this disease offer such difficulties in treatment that I am sure we should err on the side of early exploration rather than to risk a delay that may render cure impossible. Fortunately the results in the early cases are often unbelievably favorable.

The x-ray has made the diagnosis of functional and of organic stricture of the esophagus so comparatively easy that there can no longer be any excuse for allowing patients suffering with these affections to go on even to starvation, as I have known to be the case in the past.

Pernicious anemia is becoming so common, is so frequently associated with infection or other disease in the digestive tract, and its course is so commonly or even certainly a hopeless one, that we have in this affection an additional and weighty reason for attempting to keep our patients as free from digestive disease as it is humanly possible to do.

Finally, when we are faced by a doubtful con-

dition in the abdomen, tending to become more serious, early exploration must be the rule unless some unusual contraindication be present. A small but certainly not a negligible proportion of those cases in which our best means of diagnosis indicate a fatal disease are saved by early operation, often because the disease is not malignant as supposed, or is still in an operable stage. He who has not had such experiences as we have indicated falls far short of being a veteran in abdominal work.

We may felicitate ourselves when we consider that the days of a dozen different varieties of gastritis, of gastralgia, chronic indigestion, nervous dyspepsia, etc., have passed away. The physician who in these days undertakes to treat a patient for years with bismuth and pepsin, or similar so-called "digestives", instead of making a more accurate diagnosis, is likely to learn with chagrin that his patient has had his appendix, his gallbladder, or his peptic ulcer cured by operation, and his dyspepsia in that way relieved by a more alert practitioner. The unparalleled advance which has taken place in the diagnosis and treatment of digestive diseases in recent years gives us hope for a brilliant future in this department of medicine.

Lack of time forbids the consideration of other diseases nearly related. The thoughtful application of the general principles which we have considered will serve to guide us upon that portion of the road which yet lies before us.

DANGERS AND LIMITATIONS OF X-RAYS AND RADIUM.

C. F. HEGNER, M.D., Denver.

The outstanding diagnostic and therapeutic advance of the century is the x-ray. Since asepsis and anesthesia, nothing has more completely proven its value. Roentgenology properly used by an expert medical technician is a priceless boon.

In the short space of twenty years, since the x-ray was first generally used, it has been so marvelously developed, in both the diagnostic and therapeutic fields, that it almost surpasses comprehension.

We all know how the new and spectacular attracts the erratic and the unscrupulous. Radiation has been, and still is, being exploited by them. Commercial x-ray laboratories have entered the field, giving an additional element of danger.

Roentgenology is a decidedly advanced and complex specialty. A competent specialist must be not only an expert technician, but also a physiologist, an excellent anatomist and a thoroughly qualified pathologist. Last, but not least, he must be a clinician temperamentally constituted for whole-hearted cooperation with the internist and the surgeon. He is not merely a technician, but a consultant in the broadest sense of the term. The same judgment must be exercised in selecting him as in choosing any other consultant. His services are of

value in direct proportion to these qualifications.

Given all of these, x-ray has diagnostic limitations. Its very potency makes it far from being a harmless therapeutic agent. Just as the scalpel or other instrument in unqualified hands is dangerous, so is the x-ray sure to produce its full share of unfortunate sequelae and tragedies. In fact, they are more prone to occur because of the mistaken, though commonly accepted opinion that it is harmless and less dangerous than surgery.

The dangers of radiation are real, even in the most capable hands. Frequently the zeal of an enthusiast increases these dangers. Radiation is tremendously potent. The application is so complex that only the well qualified and cautious should administer treatment or attempt diagnosis.

This potency is a factor that no instrument can measure and only experience determine. Until its potency is determined and controlled, and the immediate and remote effects understood, we are sailing uncharted seas with disaster ahead. The borderline between a stimulating, a healing and a lethal dose is so fine that utmost care must be exercised lest this margin be overstepped.

In diagnosis so many details are to be considered that negligence is sure to mislead. The basis for diagnosis is founded upon direct (pathologic) evidence as shown by the roentgenogram and upon the more elusive indirect (physiologic) evidence as interpreted at the fluoroscope. When one considers all these factors, and the great number of indifferently qualified men administering therapy or attempting diagnosis, the great wonder is that so few accidents occur.

Roentgenology reveals lesions and conditions in a new light. These were always present in a given case but our older methods failed to find them. The searching, all seeing eye, reveals many things in a new light which thus revealed must be studied anew.

The clinician bases his deductions on history, subjective symptoms and objective findings. Correlating the clinical with the roentgenological evidence is an efficient check on both and makes for accuracy.

In the diagnosis and treatment of fractures, one can not be excused if the use of x-ray is omitted. Occasionally fractures, linear in type without displacement may not be demonstrated. When a case is clinically a fracture, it should be treated as such, and the negative x-ray checked in ten to fourteen days.

In multiple fractures one may be overlooked, unless the related bones of the part are examined. (e. g. pelvis and hip, high fibula in Pott's.) Rarely, a diagnosis of fracture may be made when none exists, due to misinterpretation of shadows and lines of ligaments, calcification of tendons and bursae, or supernumerary bones.

In the treatment of fractures it is ever to be remembered that displacement of fragments may be distorted by the roentgenogram, especially with careless or improper technic.

X-ray has been responsible for much pernicious surgical activity in the reduction and treatment of fractures. When the general axis of the fractured bone can be restored, and slight contact of the ends of fragments secured by manipulation, and maintained by external splints or extension, x-ray evidence of moderate malalignment is no excuse for open operation.

Restoration of physiologic function rather than accurate anatomic replacement is the object to be attained. Small profit, if one has a perfect anatomic result and a physiologic failure.

Early lesions of bones, and especially of the related soft structures about bones and joints (e. g. Pott's disease, joint tuberculosis, acute osteomyelitis) furnish inconclusive evidence. Here the clinical history and symptoms are much more reliable and the treatment indicated must be followed, or valuable time will be lost.

In the study of conditions about the gallbladder, a negative report in face of positive clinical evidence may divert attention from the true condition. A necessary curative operation is deferred long enough for complicating pathology or even incurable conditions to develop. Then a curative procedure is out of the question. Too often late operations are palliative in name only.

The cock-sureness of roentgenological opinion differing from clinical evidence sows the seed of doubt of x-ray in the mind of the profession and nurtures distrust of both in the minds of our patients.

The clinician can in almost every instance obtain irrefutable evidence of some pathology in the gallbladder area. The essential feature, pathology, in this obscure precinct is overlooked in the prevailing obsession to find stones. The basic condition is inflammation with altered physiology and incipient pathology. Calculi are later accompaniments. If one waits for positive x-ray diagnosis of biliary calculi which is obtainable in not over fifty percent, he may wait too long.

Carcinoma within the abdomen can be diagnosed with greater certainty by complete roentgenological study. Its extent and operability can not be so accurately determined.

The percentage of diagnostic success is about as follows:

Gastric ulcer, ninety percent.

Duodenal ulcer, ninety-five percent.

Gallbladder disease, seventy-five percent.

Biliary calculi, fifty percent.

Chronic appendicitis, incompetence of the ileocecal valve, filling and motor defects of the hollow viscera, carcinoma of the colon and rectum, adhesions, their location and extent, can be more accurately determined by roentgenological study than by open operation.

A thorough study of chest conditions is impossible without x-ray.

In cardiac disease the size, shape and action of the heart can be visualized, which is a decided advantage.

With the development of x-ray in diagnosis, we are prone to neglect other methods, and the

acuity of clinical observation, much more useful to the average man, will suffer. To those less fortunate, situated remote from well equipped x-ray specialists, this is self-evident.

X-ray should always be used whenever and wherever possible, not as a crutch for the weak clinician to lean upon, nor as a makeshift for the careless, but as a corroborative aid and check on other diagnostic data.

In referring a case to the roentgenologist it should be impressed upon the patient that his condition requires more thorough study. The direct evidence (plates which he may see) might be negative and the indirect evidence (which he cannot see or be shown) might be positive of pathology. Here some doctors and most patients are confused by the findings which to them are not graphic. They expect too much. We must appreciate this limitation.

The effect of radiation from x-ray and radium are similar. X-ray is less intense, has a wider range of activity. Radium is much more intense locally, more circumscribed and direct in its activity.

Superficial lesions offer the best field for therapy. With deeper penetration, better dosage control, adequate protection of overlying and surrounding tissues, it should be almost equally effective in deeper structures.

A mass of statistics on therapeutic radiation and standardization of technic is necessary before we can be certain of its effect. One has but to recall the recent chaotic state of radium therapy and, to a less degree, of x-ray therapy, to be impressed with the empiricism.

Over-dose may result directly in a mild or severe dermatitis; telangiectasis; burns of different intensities; early, late or delayed ulceration of indefinite chronicity and exhausting pain; gangrene of the skin, fat, fascia, muscle; degenerative changes in the internal organs, especially the small intestine; adhesions of the bowels; fistula; alterations of the ductless glands, the blood cells and blood forming organs; stimulation of growth; malignancy in scars of the skin or malignant transition in benign conditions; massive degeneration in deep large tumors. Over-dose may indirectly cause lowering of the vital resistance of the entire organism, predispose to infection, produce toxemia or cachexia. These latter are insidious and are frequently the cause of fatalities not always attributed to radiation, where they properly belong.

In the management of cancer it is a grievous error to trust primarily or exclusively to radiation when the growth is removable in its entirety. It is no less an error, when glandular involvement is evident, to remove the main growth with or without the glands and trust radiation to care for the rest.

I have repeatedly proven mere size of lymph glands no true index of malignancy. The reverse is more common. The larger glands are usually due to inflammatory infiltration rather than to malignant changes. The best procedure is to remove the primary growth with its lymph bearing fascia, its physiologically related lymph

nodes and also the collateral lymph glands (e. g. cancer of lip). After such radical procedure, promptly resort to radiation. Treat not so much the site of the original tumor as the outlying areas in order to get those overlooked lymph nodes and channels that might harbor malignant cells.

The radiation must effectually block the outlying lymph channels and glands of the entire area. Local recurrences are less common, hence the local site is of secondary importance.

The blocking of direct lymphatics by inflammatory infiltration forces collateral lymphatics to conduct the lymph with occasional malignant cells which lodge and grow in remote lymph nodes. This fact is frequently disregarded by surgeons and not always considered by radiation experts.

In radiation the skin may be damaged to such a degree that when operation is performed through such areas it may not heal promptly, or, being predisposed to infection, break down and later gangrene ensue.

Nothing in the realm of radiation has been so brilliantly successful as the treatment of fibroids of the uterus and its allied conditions. Either x-ray or radium alone, or, in resistant cases, combined, have been uniformly efficacious. The large soft tumors at or near menopause, the rapidly growing tumors and those that cause continued or pronounced hemorrhage are most favorably affected. The hard fibrous or calcified fibroids are least influenced. Though the diminution in size may be very great, the symptoms disappear and the patient be clinically cured, some considerable tumor remains. The effect of its presence from irritation in adjacent tissue has not yet been determined. It, therefore, must be watched lest malignancy be excited. I know of no such case of malignancy, but since our generally accepted theory of chronic irritation as a factor in carcinoma has not been refuted we must keep these cases under observation. In large soft fibroids, rapid degeneration occasionally occurs, giving rise to pronounced toxic states which may become formidable.

X-ray exercises a decided effect on lymphatic structures, the spleen, bone marrow and glands as well as lymphocytes circulating in the blood. Adenopathies recede and improve with rapidity. Judgment is necessary in treating tubercular adenopathies, for overdoing may permit a rapid dissemination of the condition.

Sarcoma and Hodgkin's disease respond favorably but there is a strong tendency for a limit of benefit to be reached. The tumor cells become resistant and the growth goes on to fatal issue without let or hindrance.

There is a striking analogy between this and the effect, often phenomenal, on the spleen and blood in Leukemias, where, after a period of control, recrudescence sets in.

This difference of early favorable and later negative effects of radiation is difficult to understand. It is hoped that further improvement in apparatus and technic may overcome this dead-point.

The hemoglobin is reduced after radiation, as much as twenty-five percent, taking a week to ten days to return to the pre-exposed level.

These effects on the blood, even after short treatment and though only temporary, are an index to the profound general effect on the system. They must be considered as having a decided influence on local and general resistance, and offer one explanation for many of the disappointments attending radiation therapy.

There are many problems still to solve. Let us thoroughly cooperate, for with mutual understanding of our high aims and an appreciation of our limitations we can, by reciprocal criticism, destroy distrust, foster confidence and increase our efficiency.

THE SCHICK TEST; ITS TECHNIC AND INTERPRETATION AND PERSONAL EXPERIENCE IN ITS APPLICATION.*

EMANUEL FRIEDMAN, M.D., DENVER.

In 1913, Schick¹ elaborated a test designed to show the presence or absence of immunity against diphtheria. This consists of the intradermal injection of a definite quantity of diluted diphtheria toxin. When the antitoxin in the fluid media and fixed tissue cells of the body reaches or exceeds a certain degree of concentration, the toxin thus introduced is neutralized and no reaction occurs at the point of injection. In the absence of an adequate amount of antitoxin, the toxin causes a local irritation of a variable degree of intensity which is recognized as a positive reaction. Von Behring² determined that one-thirtieth or even as little as one one-hundredth of a unit of antitoxin per cc. of blood serum will eventuate in a negative reaction.

The experience of numerous observers has completely established the accuracy of the test. Park and Zingher³ of the New York Laboratory of Research are so firmly convinced that the reaction unerringly reflects the antitoxin content of the blood serum that they did not immunize some two thousand two hundred Schick-negative children admitted to the scarlet fever wards of the Willard Parker hospital. All these had come in close contact with diphtheria patients; indeed, almost twenty-five percent harbored at some time during their stay virulent diphtheria bacilli; but not one developed clinical diphtheria. Similar experiences are reported by Blum and others in support of the value of this test.

At this point attention should be directed to a publication of Blauner, who found, in an institution, nine cases of clinical diphtheria in children who had previously shown negative reactions. Park,⁴ in commenting upon this experience, so glaringly at variance with his own and that of others, considers these infections as undoubted instances of streptococcic tonsillitis affecting diphtheria bacilli carriers. Park is unshaken in his belief that a negative reaction

*Read before the Medical Society of the City and County of Denver, September 5, 1922.

implies not transitory immunity, but a permanent protection against diphtheria. Zingher and Schroeder, however, have found that about one and one-half percent of a series of negatively reacting children showed, one year later, positive reactions. Blum⁶ finds this reversal of reaction rare beyond the age of three years. In the first year of life he found sixteen percent of negatives becoming positive three to six months later; whereas, in the second and third years, only twelve and four percent, respectively. Hence, the advisability of retesting children under three years, at about three or four month intervals.⁶

With the Schick test as a criterion, it has been determined that eighty-five percent of children under six months enjoy an inherited immunity which, however, disappears, in almost every instance, by the end of the first year. The greatest susceptibility is found between six months and four years, reaching about seventy-two percent; and the average for all children is from forty to forty-five percent. Children from two to six years of age with scarlet fever and measles show a distinctly greater incidence of positive reactions.

Park and Zingher⁷ found that a positive reaction is very frequently encountered in individuals for two to three months, or even as long as a year, after an attack of diphtheria. Such individuals, while not possessing antitoxic immunity, are nevertheless insusceptible to diphtheria by virtue of antibacterial resistance, which they have acquired as a result of their encounter with the Klebs-Loeffler bacillus. Immunity is doubtless established as a result of a succession of mild and unrecognized infections. The experience of Zingher,⁸ who found a decidedly higher preponderance of immunity in those New York children who lived in the congested quarters than in those from a distinctly more favorable environment, lends color to this theory. In rural communities where opportunities for infection are few, the incidence of positive reactions often reaches eighty-five percent.

Technic of Test.

Every detail pertaining to the technic of the test must be scrupulously observed.⁹ Of supreme importance is a correctly prepared and carefully standardized toxin. I have repeatedly found the product supplied in capillary tubes almost totally devoid of toxicity. In a group of children ranging from six to twelve years, I failed to obtain a single positive reaction because the toxin thus dispensed was practically inert. Zingher³ had repeatedly found upon investigation toxin of inferior potency. Undiluted toxin, when kept at icebox temperature, will retain its toxicity for months. When diluted, it must be used within twenty-four hours. Toxin stored in small quantities is more prone to depreciation than when kept in bulk. A stock toxin, kindly supplied by Parke, Davis and Co., and kept at room temperature showed but slight impairment in strength at the end of seven months, and the same toxin kept at icebox temperature had deteriorated at the end of two years only to the extent of twen-

ty-five percent (based on fifty cases). For single tests toxin furnished in capillary tubes is most convenient. If large numbers are to be tested, stock toxin is preferred.

Schick uses as a single injection one-fiftieth of the minimum amount of toxin lethal for a guinea pig, diluted in .1 cc. sterile normal saline solution. Park and Zingher⁹ prefer a dilution of one-fortieth M. L. D. in .2 cc. saline. Of the toxin used in my work, one-five hundredth cc. in .1 cc. of saline constituted one injection. By a simple process of multiplication one ascertains the quantity of toxin and saline required for a given number of tests, preparing fifty percent more to allow for loss during manipulation. The use of a pipet graduated in one-one hundredth cc. insures correct dilution. The diluted toxin must be used within twenty-four hours and kept at icebox temperature until needed. I used a small loop about .8 mm. in diameter, which held exactly three-five hundredths cc. of toxin, sufficing for three tests. This facilitated dilutions when a single test or a small number were to be performed.

As an aid in differentiating a true from a spurious reaction, toxin diluted in the manner indicated and heated for ten minutes at 75 degrees C. to neutralize the toxin, is used. Of late, Zingher prefers using a toxin with twenty-five percent increase in strength for this control. This insures a control reaction which in size and other characteristics approximates more closely the true reaction. The control solution does not deteriorate when kept at room temperature.

By preference, the flexor surface of the forearm is selected as the site for the injection. The forearm is washed with alcohol and allowed to dry. A short-bevelled, fine steel needle is sterilized by immersion in pure carbolic and alcohol and attached to a tuberculin syringe graduated in one one-hundredth cc. which has been previously sterilized in like manner, and both needle and barrel are then rinsed with sterile saline solution. The required amount of diluted toxin is injected into, but not under the layers of the skin of the right forearm. The injection is facilitated by putting the skin on a stretch. The needle is properly placed when the bevelled end shows through the skin, and the fluid has been properly deposited when a white, elevated, circumscribed area about 1 to 1.5 cm. in diameter, showing the openings of the hair follicles, appears at once. The operation is accompanied by a slight burning sensation lasting only a few seconds. In the course of a minute or two the urticaria-like area becomes surrounded by an areola, increasing the diameter of the reaction approximately to three cm.; and both disappear in about fifteen minutes. The heated toxin is injected in like manner into the corresponding region of the left arm. The time consumed in preparing for and making a single test is about seven minutes. When performed at one time upon a large number, one can readily test one hundred children in one hour. No

TABLE 1.
Characteristics of Reactions.

Reaction	Maximum Size, cm.	Maximum Size At- tained at End:			Size Reached End 24 Hrs., cm.	Color of Reaction			Infiltration End 24 Hrs.		Outline 24 Hrs.	
		24 Hrs., %	72 Hrs., %	1 Wk., %		Pale End 24 Hrs., %	Red End 24 Hrs., %	Increasing Redness Af- ter 24 Hrs. %	Infiltration	No Infil.	Sharp	Faint
Positive	2	4	68	28	1.5	29	39	32	21	79	65	35
Combined	2	36	55	9	1.3	38	31	31	27	73	53	47
Pseudo	.9	77	23	0	.8	0	87	13	48	52	68	32

TABLE 2.
Results of Schick Test, According to Age.

AGE, YEARS	Number Tested	Percent Positive	Percent Combined (Basis of 144)	Percent of Susceptibles (Pos. and Comb.)	Percent Negative	Percent Pseudo	Percent Immunes (Neg. and Pseudo)
Under 2...	8	75	0	75	12.5	0	12.5
2- 4	19	58	6	68	32	0	32
4- 6	45	47	10	54	33	13	46
6- 8	47	47	10	53	28	19	47
8-10	53	36	6	47	32	21	53
10-12	48	46	11	52	33	15	48
12-14	17	24	0	30	35	35	70
14-16	7	28		42	43	15	58
Total	244	43.8	9.7	51.4	43.2	5.4	48.6

untoward local or constitutional effects have been noted from the injection.

Reaction.

Those unfamiliar with the appearance of the reaction⁶ in its various phases of evolution and involution, should inspect the site of injection daily for four days and again at the end of the week, and make notes upon its characteristics.

When this is not feasible, the individual tested should be seen at the end of twenty-four hours, seventy-two hours and one week.

Negative Reaction: If at the end of twenty-four hours, or at any subsequent period of observation, no change takes place at the point of deposit of the toxin, we have a negative reaction. I consider a reaction less than three mm. in diameter of traumatic origin. Such patient is

TABLE 3.
Results of Schick Test According to Age Groups.

Age	Number Tested	Percentage Susceptible	Percentage Negative	Percentage Pseudo	Percentage Immunes
1- 5	48	70.8	27.1	2.1	29.2
6-10	122	48.4	31.1	20.5	51.6
11-16	72	45.8	34.8	19.4	54.2

immune to diphtheria, even though virulent bacilli are found in nose or throat. A local inflammatory process discovered in such individual is due to the activity of organisms other than the diphtheria bacilli, the presence of the latter being merely incidental and not of etiologic import.

Positive Reaction: The positive reaction is manifested by the appearance at the end of twenty-four hours of a well-defined, round or oval red area of a variable degree of intensity, from one to two cm. in diameter, with or without infiltration. This becomes progressively more marked, and reaches its maximum development in from seventy-two to ninety-six hours. At this time it is of deep red color, usually moderately infiltrated, sharply outlined, and in some instances the skin is slightly furrowed. This appearance remains unchanged for about twenty-four hours, when retrogressive changes set in. The red color becomes gradually less pronounced, a slight shrinking in size is noted, the outline becomes less distinct, and scaling appears. By the end of the week this appearance gives place to an ill-defined, reddish brown desquamating area which often persists, however without the scaling, for several weeks. The positive reaction denotes a susceptibility to diphtheria which is usually in direct ratio to the intensity of the reaction.

In my series, the average maximum size was two cm., and was equal in both sexes. In one institution, thirteen percent of thirty-one positive cases reached this maximum at the end of twenty-four hours, thirty-seven percent at the end of forty-eight hours, forty-seven percent at the end of seventy-two hours, and three percent at the end of ninety-six hours. Ninety-seven percent had attained the maximum before seventy-two hours. At another institution only four percent out of fifty cases had reached the maximum degree of development at the end of twenty-four hours, and in this group the younger children reached their maximum earlier than the older ones. The maximum size averaged 1.9 cm. in children under five years, 2.2 cm. between six and ten years and 2 cm. in the group of eleven to sixteen years. In one hundred and seven positives, three measured 3 cm. or a trifle over,

and only two were below 1 cm. in diameter. The smallest positive encountered measured .5 cm. At the end of twenty-four hours the average diameter was 1.5 cm.; only four measured less than 1 cm. (For details pertaining to the other characteristics see table appended.)

Delayed Positive Reaction: Delayed positive reaction is, as its name implies, a positive reaction in which the earliest manifestations of a reaction do not appear until twenty-four to forty-eight hours following the injection. It differs otherwise in no striking detail from the ordinary positive case. It occurred in 5.6 percent of all my positives, and its importance lies in the possibility of misinterpreting it as a negative during the first twenty-four to forty-eight hours. It occurs most frequently at about the age of six years, with an average diameter of 1.5 cm.

Pseudo-Reaction: A certain number of children, especially those above six years of age, in whom a negative reaction is expected because they are not predisposed to diphtheria, nevertheless show a local reaction following the injection of diphtheria toxin. This is due, not to the action of the toxin as is the case in the positives, but to a sensitization of the skin to the autolyzed protein substances of the diphtheria bacilli found in the solution used. We have unfortunately no means of eliminating this product. The reaction caused by its presence closely simulates a positive reaction as it appears at the end of twenty-four hours; but even at this stage of development, distinctions may be recognized which help differentiate the two. The pseudo-reaction, as this is termed, reaches its height in twenty-four hours or earlier, is a little smaller, slightly more infiltrated, and frequently surrounded by an areola. I have encountered this infiltration with the secondary areola only in exceptional instances. After twenty-four hours the reaction begins to fade, becomes ill defined, and usually at the end of the third or fourth day has completely disappeared, or been replaced by a poorly defined brownish area without scaling. The absence of scaling, and the more rapid development and involution constitute the chief distinguishing features between this and a positive reaction. The pseudo-reaction has for practical purposes the significance of a negative reaction.

In thirty-nine boys, the average maximum size of the pseudo-reaction was .9 cm., and this was reached in seventy-seven percent of the cases at the end of twenty-four hours, and in twenty-three percent at the end of seventy-two hours. (Reaction inspected at the end of the first and third days.) In five girls the average was 1.78 cm, or almost twice the size found in boys. It is almost twice as large in children between six and ten, when it measures .78 cm. as in those under six; and measures 1.2 cm. in those over ten. In sixty percent of the cases, it averages under .7 cm.; in a large number only .3 cm. The greatest size attained was 2 cm., and this in only one instance. In the group between six and ten years almost eighty percent of reaction measured under .8 cm.

The Combined Reaction: The combined reac-

tion is the result of the action of the diphtheria toxin and the protein substances, in an individual susceptible to diphtheria and also sensitized to the protein in the solution. It partakes of the essential characteristics of a positive reaction, differing chiefly from the latter in that it reaches its maximum size in about one-third of the cases at the end of twenty-four hours. It is larger in children between the ages of six and ten, due no doubt to the pseudo element, averaging 2.35 cm. as compared with 1.85 for other ages. Its significance is practically that of a positive reaction.

Control: The control presents at the end of twenty-four hours the general appearance of a positive reaction, though considerably smaller in size; and, like the pseudo-reaction, reaches its maximum in twenty-four hours and by the end of three to four days leaves an ill-defined brownish discolored area without scaling. When it occurs in a susceptible individual, its average size is about .75 cm. In the nonsusceptible, the average is only .55 cm. and is frequently as large, and often larger, than the reaction produced in the opposite arm by the unheated toxin.

Resumé of Significance of Reactions: If the control is negative at the end of twenty-four hours, and the unheated toxin positive, we have a true reaction. If the control is positive at the end of twenty-four hours, and is associated with a positive from the unheated toxin, the latter being distinctly more pronounced, we have, in all likelihood, a combined reaction. If the control is positive at the end of twenty-four hours, less than 1 cm. in diameter, and associated with a positive produced by the toxin, the latter being little if at all larger, we have probably a pseudo-reaction. Through faulty technic it might rarely occur, as it had in three instances of my series, that the control is negative in association with a pseudo-reaction. Such experience may lead to an erroneous interpretation of a pseudo-reaction as a positive. It should likewise be remembered that the appearance of the control may rarely be delayed giving rise to the possibility of a similar error during the first twenty-four hours.

Results of Tests.

The Schick test has been performed by me on two hundred and forty-four children, sixteen percent of whom were private cases, and the remainder inmates of child-caring institutions. The ages ranged from a few months up to sixteen years. One hundred and ninety-one were males and fifty-three females.

Positive Reaction: 51.6 percent gave a positive reaction, with a slightly higher incidence of susceptibility in the females, 58.5 percent, as against 49.7 percent in males. The percentage of positives in the private cases was practically the same, 51.4 percent. In one institution housing forty-five children, where diphtheria outbreaks had been of rather frequent occurrence up to two years, the percentage of positives reached 68.8 percent. In the institution housing only male children 44 percent showed susceptibility. The percentage of susceptibility de-

creased from 70.8 percent in those under five years to 45.8 percent in children between eleven and sixteen years.

Pseudo-Reaction: 16.4 percent of all tested gave a pseudo-reaction; of those reacting in this manner only 2.1 percent were found under five years and 20 percent in those above. In private practice only 5.4 percent revealed pseudo-reactions. Male children showed a slightly higher incidence of pseudo-reactions, 17.3 percent as compared with 13.2 percent.

Combined Reaction: Out of one hundred and sixty-two cases so tested, 11.8 percent revealed a combined reaction.

Most observers have found that members of the same family are prone to react to the Schick test in a surprisingly similar manner. My personal experience corroborates the accuracy of this observation. In fifty-one families, each represented by two children, in forty-two instances (or 84 percent), identical reactions were noted. In those showing unlike reactions, in three instances the younger child was positive, and contrary to expectation, in six negative. In twelve families each contributing three children identical reactions were observed in the members of eleven groups. In those families, the members of which showed positive reactions, the younger child presented in half the cases a more intense reaction, which reached its maximum earlier, than in the older.

Value of the Test.

A review of the literature on the Schick test furnishes convincing evidence that it is a dependable index of immunity against diphtheria.

Its extended application shows that a considerable proportion of our child population is immune to diphtheria. It enables us to cope effectively and intelligently with the vexatious "contact" and "carrier" problems. Only the susceptible ones need be immunized with antitoxin; whereas the immune are spared the expense, the inconvenience and the possible risk inherent in the administration of a foreign serum.

It has proved that the intravenous route of administering antitoxin is from ten to twenty times more effective than the customary subcutaneous method.

Its use after active immunization shows whether or not immunity had been successfully induced.

Its routine application in orphanages, hospitals and other institutions where large numbers of children are in prolonged intimate contact, has brought about a material diminution in the frequency and severity of diphtheria outbreaks.

Zingher and his associates have conceived, and indeed are carrying into effect the gigantic scheme of Schick-testing every school child in New York City. Those found susceptible are asked to submit to active immunization by the toxin-antitoxin method of Behring, which on the basis of a wide experience has been found safe and gratifyingly effective. Indeed, it is their belief, implied though not expressed, that the

complete eradication of diphtheria is not impossible of achievement.

The medical profession has remained singularly indifferent to the advantages to be derived from the practice of the Schick test. The campaign, in progress in New York, will undoubtedly arouse it to a full realization of its responsibilities. It should be remembered that notwithstanding the generous use of antitoxin, diphtheria still exacts a yearly toll of twenty thousand lives in the United States.

Our efforts must be diligently and unceasingly directed to the end that every child, regardless of age, in every community shall be periodically Schick-tested, and if found predisposed, shall have active immunity conferred.

We confidently look to our various health authorities in co-operation with their respective school boards, to take the initiative in this movement which may rid mankind of a justly dreaded scourge.

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News Notes

Dr. Saling Simon of Denver left for New York on September 20, expecting to be gone about a month.

Drs. J. N. Hall and S. B. Childs of Denver were in Los Angeles, California, in September, where they participated jointly in the program of the twenty-third annual meeting of the American Roentgen Ray Society. Their subject was "New Growths Within the Chest".

Dr. T. E. Carmody of Denver was elected president of the American Academy of Ophthalmology and Otolaryngology at the twenty-seventh annual meeting of the academy in Minneapolis, September 19-23.

Dr. Frank A. Burton, who has recently returned to Denver from California, and Dr. Wm. H. Geistweit, Jr., announce the opening of offices in suite 721 Majestic Building, Denver, practice limited to diseases of the ear, nose and throat.

Dr. Robert L. Charles of Denver has gone to New Orleans, where he will attend the American

Legion convention; he will then go to Cuba and complete a trip of about a month before returning to Denver.

A note from Dr. W. A. Schoen of Victor says that Teller County Medical Society is working and making every effort to defeat the antivivisection bill.

Drs. Sheller, Likes, Davis, Burnett, Pestal and Williams made a trip to Holly recently to confer with the doctors of that city regarding the proposed memorial hospital. They were accompanied by Eugene Groves, Denver architect, who has drawn tentative plans for the proposed Prowers county memorial, and who explained his plans and listened to suggestions from the medical men.—Lamar Sparks, September 21, 1922.

Dr. Robert G. Paekard of Denver was married on September 20 to Miss Elfrida Van Meter. Dr. Paekard is a son of Dr. G. B. Paekard, Sr., and the bride is a daughter of Dr. S. D. Van Meter, all of Denver. They are still on their honeymoon.

According to the daily press, the first contract in the building of the state hospital and medical school in Denver was recently issued by the board of regents of the University of Colorado to Arvid Olson of Denver. Olson was awarded the contract for excavation work and construction of the foundation.

About twenty members of the Otero County Medical Association enjoyed a meeting and dinner at the El Capitan hotel on Thursday, September 14. An interesting paper was read by Dr. R. E. Wolfe of Rocky Ford.

Dr. and Mrs. W. W. Yates of Fort Collins returned early in September from a ten day camping trip through Colorado.

Dr. Edwin C. Ernst of St. Louis, Dr. A. P. Overgaard of Omaha and Dr. M. O. Rea of Dallas were among the radiologists who stopped over in Denver on their way home from the meeting in Los Angeles of the American Roentgen Ray Society.

The Tri-County Medical Association, at its meeting in Montrose, September 20, invited the dentists of their district to join their association as associate members. The meeting was attended by about thirty physicians from Montrose, Delta and Mesa counties and was addressed by Dr. C. F. Hegner of Denver.

The Boulder County Tuberculosis Association has recently been reorganized with Dr. Severance Burrage of Boulder as chairman and Dr. John F. Andrew of Longmont as vice-chairman. Dr. Burrage was identified with a similar movement in Indiana for a number of years.

At a meeting of the Fremont County Medical Society, held September 25, in Florence, the evening was taken up with a discussion of the antivivisection bill.

The office of the Colorado Association for the Protection of Public Health is at 505 Imperial Building, Denver. Telephone Champa 7718. All inquiries for information or literature should be made there. Checks in payment of subscriptions to the fund should be sent there, made payable to A. C. Foster, Treasurer.

The secretary of the State Society acknowledges receipt of the programs of the annual sessions of the Nevada State Medical Association, Bowers Mansion, October 6-7, and the Medical Society of the State of Pennsylvania, Scranton, October 2, 3, 4 and 5.

During the meeting of the Colorado State Medical Society at Colorado Springs, the doctors' wives met and organized a Woman's Society which will be the auxiliary to the State Medical and a branch of the National Auxiliary to the American Medical Association. Its purpose is to promote acquaintanceship among the doctors' wives and to assist in entertainment at state meetings. The dues will be one dollar a year to cover current expenses. A cordial invitation is extended to wives of all members of the Colorado State Medical Society and the women doctors of that society to affiliate themselves with this new organization.

Cancer week will be November 12-18, inclusive.

Local committees are urged to undertake their preparations for the campaign now.

LIGHT IMPRESSIONS OF THE ANNUAL MEETING.

Along the Road:

The Secretary-Editor, whisked to Colorado Springs in a little over two hours by a driver who claimed he had had only a few lessons and was quite unskilled, and whose reckless speed proved his contention, was thankful to arrive with only a physiological upset. It was a stimulating introduction to a rush of affairs which enveloped him from that time until the close of the last general meeting.

Stories are told of one driver who stopped at half-hour intervals along the way, produced a thermos bottle, filled a cup, introduced a white powder which made the contents look like milk, swallowed the mixture and rolled merrily on; of another who on discovering his front wheel had decided to part company with vehicle and occupants, so steered his critter as to keep the wheel captive under the fender until speed was reduced and a president-elect saved; of a night driver who by moonlight saw a whoopsnake rolling alongside his car, tried to run away from it, and was gaining on it when it separated into two distinct parts which rolled off separately toward the fields; considering this an illusion due to the moonshine, he rallied his nerve and continued on, but said the road was choppy under his right front wheel—a passer-by pointed out that his tire and rim were gone; of a generous motorist who offered to take a traveling man to Denver, which he did, loading in the two big trunk-suitcases which stood on the platform and whose ownership was innocently denied by the passenger on arrival at Denver—the real owner, being a Denver man, called the motorist up at 2 a. m. to express his gratitude; of two eminent Denver members who are suffering from stiff necks, they having been actually catapulted head first through the top of their car. If this much happened on the Denver end of the road, who can say what took place on the Pueblo end! At the Meeting:

Casualties were few—so were recesses. The tragedy of the lost fur: one in a group of ladies in a tram car on Cheyenne road whose fur is in her lap sees it suddenly rise and float out of the window and while in pursuit of it later sees the villain stop his car, pick up the fur and rapidly fade with it into the distance; the villain repents and in response to a carefully worded ad returns the fur to the heroine, explaining that he thought he had run over a dog, threw it into his car and hurried with it to the kennels. (This tragedy ends happily to conform with the modern movie demand).

Because of the success of a certain exhorter at the meeting in raising funds for the animal experimentation campaign he is likely to be engaged to sell the Jubilee Volume.

If some fisherman will donate an old trunk rod to the Society, the Secretary could preserve it for a pointer so that at future meetings such details as fish bones (natural size) and cardiographic mountain ranges may be demonstrated, and x-ray pathology shown to be where it ain't.

DEATHS.

(Colorado Medicine is indebted to the Journal of the American Medical Association for the following account of the life of Dr. Alexander Righter Craig, excerpted verbatim.)

"**Alexander Righter Craig**, Secretary of the American Medical Association since 1911, died of uremic poisoning while on his vacation at Port Deposit, Maryland, September 2, aged 54. Dr. Craig was born in Columbia, Pa., July 31, 1868, the son of Dr. Alexander Craig and Eleanor Margaretta Righter Craig. He received his A.B. degree from Franklin and Marshall College, Pennsylvania, in 1890, the A.M. degree in 1893 and the M.D. from the Medical Department of the University of Pennsyl-

vania in 1893. In 1920 he was granted the honorary degree of Doctor of Science by Franklin and Marshall College, his alma mater. Following his graduation in medicine Dr. Craig served as resident physician at the Philadelphia Polyclinic Hospital, 1893 to 1894. He then practiced in Philadelphia until 1895 and in Columbia, Pa., from 1895 to 1906, when he removed to Philadelphia and continued practice until 1911. At the Los Angeles Session, in 1911, he was elected Secretary of the American Medical Association; this election was the culmination of many years of service to organized medicine."

At the fifty-second annual session of the Colorado State Medical Society, the following resolution on Dr. Craig's death was unanimously adopted and afterwards concurred in by the general session:

Resolution on the Death of Dr. Alexander Righter Craig.

The Colorado State Medical Society expresses its deep regret for the untimely death of Dr. Alexander Righter Craig, for the past eleven years Secretary of the American Medical Association. His manner and his large experience and skill in harmonizing conflicting views and interests made him always agreeable to work with, and a very important influence for the welfare of the medical profession of this country. His visit to the last annual meeting of this society was a distinct benefit to us, and will be long remembered as a pleasant incident in our history.

Dr. W. H. Keesee of Denver died rather suddenly October 5. He had recently come from Haxtum to close up the affairs of his father, Dr. John Keesee, who died September 20.

Dr. Keesee was born at Louisville, Ky., in 1870, obtained his medical degree at the St. Louis College of Physicians and Surgeons, practiced in Illinois for awhile and was licensed in Colorado in 1898. He was elected to membership in the City and County of Denver Medical Society in 1917, and in the Northeast Colorado Medical Society in 1921.

Dr. Walter Fremont Church died at his home in Greeley September 9, 1922, at the age of 57. He had been in poor health for some time and had planned to spend the winter in Florida. Dr. Church was born in 1865 at So. Otselic, New York, obtained his medical degree in 1899 from Rush Medical College and practiced in Illinois before coming to Colorado. He was licensed in this state in 1901 and became a member of the Colorado State Medical Society in 1902 through his Weld County membership. He has practiced regularly in Greeley for 21 years.

Dr. Arthur Clyde Asquith of Denver died September 21, 1922, at the age of fifty-three. He was born at Reynolds, Illinois, in 1869, graduated in medicine from Rush Medical College in 1894 and was licensed in Colorado the same year. He became a member of the Colorado State Medical Society through Denver County affiliation in 1918.

WANTED

The town of Armour, South Dakota, with a population of about three thousand, presents an opening for a doctor to take the place of Dr. L. Beigler, who is expecting to leave. There is considerable surrounding country practice. Dr. Beigler may be consulted by mail for further information.

For Sale—White fountain cuspidor, splendid condition. Dr. G. P. Lingenfelter, 452 Metropolitan building, Denver.

Doctors' Incomes a Hundred Years Ago.

(The following clipping, handed to the Editor by a Denver colleague, is from the Newtown Enterprise, Bucks County, Pa. No brain fog then from income tax schedules!)

OLD-TIME DOCTORS.

In 1811, one hundred and eleven years ago, there were twenty-three physicians practicing medicine in Bucks county whose yearly incomes were large enough to be assessed. Dr. (name omitted) headed

the list at \$2,000; Dr. Isaac Chapman, Wrightstown, \$1,800; Dr. Joshua Jones, Southampton, \$1,000; Dr. David Fell, Upper Makefield, \$1,000; Dr. Thomas K. Biles, Lower Makefield, and Dr. Charles Meredith, New Britain, each \$800; Dr. Eli Kitchin, Plumstead; Dr. Joseph Thomas, New Britain, and Dr. Mahlon Gregg, Middletown, each \$600. The following were the physicians whose receipts that year were assessed at smaller sums: Hugh Meredith, Warwick; William Williams, Springfield; James Green and Benjamin Green, Richland; Phineas Jenks, Newtown; John Humphreys, Milford; James Tate, Middletown; Samuel H. Carver, Hilltown; Benjamin March and Reading Beatty, Falls; Seth Cattell and John Wilson, Buckingham; John Mitchell and Henry Disborough, Bristol.

Medical Societies

COLORADO NEUROLOGICAL.

The September meeting of the **Colorado Neurological Society** was called to order by the President, Dr. George A. Moleen, at the University Club, Denver, at 8:30 p. m., September 16, 1922.

The minutes of the May session were read and approved.

By unanimous vote of the Society the following officers were elected for the ensuing year: Edward Delehanty of Denver, President; Frank T. Stevens of Colorado Springs, Vice-president; Leo V. Tepley of Denver, Secretary-Treasurer.

Dr. C. S. Bluemel presented a patient twenty-six years old whose chief subjective symptoms are that she has developed a nasal voice and has slight difficulty in articulation. This is especially marked in pronouncing sibilant consonants. The patient also complains of marked pain in the left infra-orbital region and the left side of the neck. The nasal voice first appeared about three years ago and persisted for two or three months. An operation on the turbinates was performed and her condition soon improved, and was practically normal for about fifteen months. The condition then reappeared and has been progressive ever since. The reflexes and eye grounds as well as the urine, blood and spinal fluid are negative. There is considerable atrophy of the tongue, particularly in the posterior half. She cannot elevate the tongue to the roof of the mouth, and cannot close the eyes tightly. There is a marked weakness of the muscles of the eyelids. Dr. Bluemel thought it to be a case of bulbar paralysis probably due to encephalitis. Most of the members concurred in his opinion.

Dr. Delehanty reported that a patient of his suffering from paresis developed a temperature of 103° and a typical scarlet rash soon after spinal drainage and the administration of neosalvarsan intravenously. He considered it a reaction to the administration of arsenic. Dr. Moleen stated that he had had similar experiences.

Dr. Edward Lazell reported to the Society his results of the treatment of one hundred and two patients, all ex-servicemen, suffering from hyperthyroidism. The diagnoses he stated were made by various physicians after a careful study of the patients' basal metabolism and many other corroboratory tests and he confirmed the already established diagnoses. Ninety-three patients entirely recovered so that they were dismissed from the government payroll. Only four cases have not received any relief. The treatment consisted of a series of twenty-six lectures in which he carefully explained to the patients the rôle of subconscious fear in the causation of their symptoms and diseases. The results of this series he concluded stand as a challenge to the neurological branch of the medical profession. To Dr. Delehanty's question whether those patients had enlarged thyroids he answered in the affirmative, and added that all the goiters excepting the cystic type were reduced in size after treatment.

Dr. Moleen informed the Society that his patient with a cerebral gumma and optic neuritis, whom he demonstrated at a previous session, felt clinically much better and he had a negative blood Wassermann, but his fields of vision still retained the blindness as at the time of the demonstration. He also reported a case of arterial obliteration. The patient first noticed a swelling and redness of the ends of the finger. Within a week there were red and white lines followed by sloughs. After an ointment application the condition got well for a few months but it reappeared six weeks ago. The examination of the patient was entirely negative except for an obstinate constipation. The radial pulse was absent in the left, but the brachial was present and impressed one as if it were working against an impediment. He considers this case an obliterative endarteritis and phlebitis with hyperplasia of the intima of both vessels.

Dr. Howell T. Pershing reported a female patient of seventeen who had good health, but who had lost of late fifteen pounds in weight. Outside of a trace of sugar in the urine which disappeared nothing abnormal could be elicited. On the 9th of September she complained of double vision. On the 10th she suffered from headache and had difficulty in articulating speech. The temperature was normal. On the 12th she had difficulty in breathing and swallowing. This condition lasted all day of the 13th; she was conscious but very cyanotic; her temperature was 99° F., respiration 44, and pulse 144. She died at 4:30 p. m. on the 13th. Dr. Pershing considered it a case of encephalitis attacking chiefly the respiratory center.

Dr. Tepley reported the case of a patient twenty-eight years old who about nine months ago began to complain of shooting pains in the legs, which were followed by a dull sensation. There was also a gradual weakness in the lower extremities and a loss of sexual power and within the last five months patient has had no erection. Examination revealed a slight inequality of the pupils with a very sluggish reaction to light. There was a slight ataxia of the upper extremities and a decided Romberg sign, also an unmistakable tabetic gait. The knee jerks and cremasteric reflexes were absent and Achilles tendon reflex diminished. A diagnosis of posterior sclerosis was made. The spinal fluid was withdrawn with the hope that it would confirm the diagnosis, but he was surprised to find a negative Wassermann and only 10 cells per c.m., and a slight increase in the globulin. The blood Wassermann was positive. In spite of the practically negative laboratory findings he considered the case as one of tabes. He instituted antispasmodic treatment which resulted in rather prompt relief of the shooting pains. Dr. Howell T. Pershing called attention to the possibility of a nonspecific myelitis. Dr. Moleen cited instances in which his patients had unmistakable tabes and negative laboratory findings, and thought that this was most likely a case of tabes.

LEO. V. TEPLY, Secretary.

Notes From the Library

The Surgical Clinics of North America (Issued Serially, one number every other month). Volume II, Number IV (the Boston Number). Paper, \$12 net; cloth, \$16, net. Philadelphia and London: W. B. Saunders Company.

This August number of the *Surgical Clinics of North America* is one of the best that has appeared in this young publication. It is marked by careful, thorough articles which contain very valuable experiences of experienced men. There is an appreciated absence of the slipshod, slapdash clinics that we sometimes see, even from the best surgeons. We cannot commend this Boston issue too highly to those who wish to keep up with the work of the better contemporary surgeons.

The outstanding feature of the book is the contribution of Frederick J. Cotton, who reviews 109 cases of knee joint lesions from his own personal experience. In these 109 cases, he covers about

thirty different conditions, which include nearly everything possible in the knee joint. Starting with the simplest condition, acute synovitis, he leads up through arthritis to the operative conditions such as cartilage dislocation and other traumatic lesions, tubercular excision and arthroplasty. It is a very wonderful resumé of the whole subject of the knee joint and shows Cotton's treatment in each case. The only regret is that he could not have had still more space to give us his operative technic in detail.

Also in joint surgery, MacAusland gives a detailed account with illustrations of his arthroplasty of the elbow—a real major operation well explained, probably the best operation yet devised for ankylosed elbows.

The clinic of John T. Bottomley consists of one most instructive case. An injury to the common duct occurred during cholecystectomy. The patient is followed, beginning with the first operation and the immediate repair of the duct, through the trials of succeeding strictures and plastic repairs. It is an excellent treatment of one of the most difficult surgical problems. There is a good bibliography.

This rich number should not be set aside without reading Richardson's clinic, two cases of gastric ulcer with hemorrhage. Also Graves' gynecological clinic, and Harmer's treatise on tendon injuries are most excellent in their lines.

G. B. P. Jr.

Preventive Medicine. Edited by Wm. A. Evans, M.S., M.D., LL.D., D.P.H., Professor of Sanitary Science, Northwestern University Medical School. With the Collaboration of G. Koehler, M.D., Assistant Commissioner of Health, City of Chicago. Practical Medicine Series, 1921. The Year Book Publishers, Chicago. Price, \$1.75. Price of the Series, \$12.00.

This volume on Therapeutics and Preventive Medicine of the Practical Medical Series of 1921 contains about 370 pages. It is divided into two sections. The section on Pharmacology and Therapeutics is edited by Dr. Bernard Fantus. He discusses the subjects under the following headings: Etiotropic therapy; Restorative therapy; Functional therapy; Toxicology, and non-pharmaceutical therapeutics. The literature is extensively and concisely extracted. He discusses the new remedies and new uses for the old ones. Many useful points in technic are presented.

The section on Preventive Medicine is edited by Dr. Wm. A. Evans. It covers the advances made in this important field. The chapter on Control of Contagion should be read by every physician. The book offers a brief and authoritative digest of the subjects covered.

W. H. H.

The Results of Treatment in Syphilis of the Nervous System. Hearn reviews 100 cases of syphilis of the central nervous system treated at London Lock Hospital during the last two years. All the patients were men. After clinical diagnosis of nervous syphilis the cerebrospinal fluid was examined. A week later the patient was given a maximum intravenous injection of one of the salvarsan substitutes. After an interval of one week the injection was repeated and immediately followed by drainage of the thecal canal. This method of alternating weekly injection and injections plus drainage was continued until the patient had received eight injections. Intramuscular injections of intramine were given and the patient put on a potassium iodide mixture. The course was repeated in two or three months' time if necessary.

Seventeen were of the meningeal interstitial or late secondary type. As a result of treatment these patients were restored to normal health, as far as could be determined.

Degenerative or parenchymatous cases were materially benefited by treatment as far as their subjective symptoms were concerned. In no instance was it found possible to bring about alteration in the physical signs or to effect any permanent change in the cerebrospinal fluid.

General paretics were improved and the onset of insanity postponed, provided they were brought under treatment before they had become obviously stupid and fatuous. There was no change in cerebrospinal fluid. (Reginald Hearn, British Medical Journal, July 8, 1922.)—Reprint from "Abstracts from Recent Medical and Public Health Papers, Issued by the Division of Venereal Diseases, U. S. Public Health Service."

Effects of Breathing Carbon Dioxide.

(From U. S. Bureau of Mines.)

Experiments on the effects of breathing carbon dioxide have been conducted at the Pittsburgh, Pa., station of the United States Bureau of Mines under the direction of Dr. R. R. Sayers, Chief Surgeon of the bureau, and A. C. Fieldner, supervising chemist. About 2 percent of carbon dioxide in oxygen produced a slight increase in lung ventilation but no subjective symptoms; 5 percent in oxygen caused an increase in lung ventilation of about 100 percent, but no other signs or symptoms; 7.2 percent produced about 300 percent increase in lung ventilation, and moderate perspiration and a slight fullness in the head were experienced after breathing the mixture for ten minutes; 9 to 10 percent produced about 300 percent increase in lung ventilation, and the subject complained of frontal headache and was dizzy and perspiring at the end of ten minutes. About 9 percent of carbon dioxide in oxygen was breathed by some of the subjects for as long as forty-five minutes, but the breathing was very laborious, and dizziness, headache, and perspiration were marked.

Metal Mine Dusts.

(From U. S. Bureau of Mines.)

In the general study of dust and ventilation conditions in metal mines, as affecting the health, safety and efficiency of underground workers, being made by the United States Bureau of Mines, the following problems are yet to be solved: Why one dust is more harmful than another; why dust of a certain chemical or mineralogical composition is harmful in one mining locality and relatively harmless in another; the best practical measures to avoid the ill effects of harmful dusts; how best to cause air to circulate with maximum efficiency and minimum cost to places where metal miners work; the quantities of air necessary under varying conditions; and the physiological effects due to various kinds of gases, degrees of air vitiation, and ranges of temperature and humidity.

Unscientific Sacrilegists.

It is not peculiar that the mind of the uneducated savage should lay the cause of disease to the handiwork of the devil, and should therefore seek methods supernatural to free himself from his tormentor, but at this day when the microscope has proven beyond question of doubt that disease is not the result of supernatural forces concerning themselves with the mortals here below, but the result of definite contact and infection by minute micro-organisms, specific in their reactions and amenable to specific therapy, it is pitiful that multitudes of educated people should so revert to the superstitions of the dark ages as to deliberately blind themselves to the achievements of science and so fill their minds with the teachings of radical fools as to stand in the way of medical assistance until a poor suffering bit of humanity has passed beyond all human aid. These deluded monomaniacs are not only a menace to themselves, but to the health of the nation, and were it not for the fact that many of the ailments of mankind are self limited and self curative, their atrocious crimes of increasing the sufferings, diseases and deaths of innocent victims who might otherwise have been benefited by the physician, would have made their barbarian methods and sacrilegious offerings of human sacrifices upon their infamous altars, built upon superstition and founded upon fraud and deceit, a crime of even a baser rating than murder, rape or treason.—A. W. Stahl in Denver Medical Bulletin.

Colorado Medicine

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PUBLICATION COMMITTEE.

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Editorial Comment

EXIT ANTIVIVISECTION.

At the present writing the official count on the antivivisection bill is not yet available, but the indications are that the bill has been defeated by the heaviest majority ever recorded against an initiated measure in Colorado. In newspaper language, the bill was "snowed under".

It has been said that the "Death Bill" furnished an intelligence test for the voters of Colorado, and it is now evident that they passed the test with a high "intelligence quotient".

The history of the bill is an amazing story of medical law-making by people who know nothing of law and nothing of medicine. The bill was originally filed with the Secretary of State by three women—a cook, a carpenter's wife and an elevator pilot. These women could have known nothing of the consequences of the bill, and it is probable that they were mere dummies who signed something they did not understand and were not capable of investigating.

Apparently the real promoter of this bogus enterprise in antivivisection was Mr. E. K. Whitehead of the Colorado Bureau of Child and Animal Protection. From all indications Mr. Whitehead has been midwife, wet nurse and foster mother to this misborn scheme, though he has preferred to function in his different rôles anonymously.

The Antivivisection bill proved to be a rallying flag for the medical underworld, since it gave these people excuse for unrestrained anti-medical attack.

The chiropractors were quick to mobilize. Their antivivisection committee sent a letter to every chiropractor in the state, urging him to get signatures for the petition to initiate the bill. The letter from the chairman of the committee is well worth quoting:

"We three are to call on all the chiropractors in Denver, personally, and deliver petitions for them to fill to initiate a law for the November election.

"Those of you out of Denver that will promise to fill a petition, please write to me at once and I will mail same to you immediately. I will shoulder that part of the expense of it personally. I will gladly take that time for the good of the cause. Boys, do not delay, but each of

you write at once or let each city write collectively, and let's show them that we chiropractors do things, and show them that we're alive and will do things like a body well organized. Let's show this Society that we're a live bunch and that when we go after a thing we go after it in a whirlwind fashion.

"When you get your petition filed, go before a notary for proper signature and affidavit, pay the little old twenty-five cents for his fee and let me have a small load of them to deliver every ten days."

The purpose of the chiropractors' campaign is freely admitted in parts of the letter. The "doctor" says:

"We have been working for this law for years, and now that we have another organization taking the big load of pushing this law, the chiropractors must get back of it and fill each petition and send in for more.

"Boys, the medics have gained big schools and hospitals and have passed laws raising about \$3,000,000 for their profession in this state within the past two years."

This appeal for chiropractic solidarity seems to have had its effect, for the chiropractors turned in a large proportion of the petitions that placed the bill on the ballot. One chiropractor turned in five petitions; two of them in partnership turned in seven.

This anti-medical zeal of the chiropractors has nothing to do with vivisection, for the chiropractors themselves employ animal experiments, and have recently organized a "National Chiropractic Research Society". Their activities are therefore anti-medical, and nothing else.

Vicious anti-medical propaganda has also been indulged in by the American Medical Liberty League, which published some of the scurrilous newspaper advertisements favoring the bill. This Medical Liberty League is nefarious enough to warrant a little investigation. Its Denver secretary is Mrs. L. A. Hall, who is also secretary of the Denver Society for the Abolition of Vivisection. Two of the national officers of the League are D. W. Ensign and W. S. Ensign of the Ensign Remedies Company of Battle Creek. This company is a patent medicine concern, which does a mail-order business in remedies for bashfulness, disappointment in love and similar ailments.

These different affiliations make it clear why the sponsors of Colorado's antivivisection bill

have remained anonymous and have maintained their headquarters at a postoffice box.

It need scarcely be said that the Colorado Association for the Protection of Public Health has known from the early days of the campaign that the bill could be directly traced to the medical underworld; but as a matter of policy it has fought the bill purely as an antivivisection issue. It was clear from the start to any thinking person that the bill was in reality an anti-medical measure. In the first place, the antivivisectionists have never alleged a single case of cruelty to children or laboratory animals in Colorado, for which state the bill was to legislate. In the second place, the bill prohibits experiments "with or without the use of anesthetics", and it is therefore intended to stop experiments rather than to minimize pain.

The credit for the defeat of the "Death Bill" is largely due to the Colorado Association for the Protection of Public Health. The history of this organization will be briefly sketched as a matter of record. On July 12, 1921, there appeared in the *Christian Science Monitor* a news item, in which the Denver Society for the Abolition of Vivisection announced its intention of initiating an antivivisection bill at the general election. The announcement was made by "Mrs. Leonora A. Hall, an attaché of the State Bureau of Child and Animal Protection". (Again the universal secretary, Mrs. L. A. Hall).

Dr. W. B. Cannon of Harvard University sent this clipping to Dr. Henry Sewall of Denver and called attention to the dangers of the bill. Dr. Sewall proceeded to organize the Colorado Association for the Protection of Public Health. The association represents life insurance men, agriculturists, stockmen, educators, ministers, doctors, dentists, veterinarians, women's clubs, labor unions and other organizations. Splendid work for the defeat of the bill was done by Tyson S. Dines, counsel for the association; Dr. C. T. Burnett, secretary of the association; C. W. Swayze of the Colorado State Grange and by Rabbi Friedman, Bishop Mead, Bishop Tihen, Bishop Johnson, Dean Browne and Mr. Ernest Harold Baynes, the well-known naturalist.* Scores of doctors and dentists lectured against the bill. Many talks were given by radio, which proved to be one of the best means of publicity. Thousands of posters and cartoons were displayed and hundreds of thousands of circulars distributed. The newspapers assisted with articles and editorials, and published letters secured by the association from men of national prominence.

To publish the full details of the campaign would be to place too much information in the hands of the antivivisectionists, but it is well to give the widest publicity to the results—that the antivivisection bill was defeated by a vote of five to one.

C. S. B.

*Not forgetting Dr. C. S. Bluemel, Chairman of the Publicity Committee.—Ed.

THANKS TO CONSTITUENT SOCIETIES.

The executive officers of the Colorado State Medical Society, in issuing a special appeal to constituent societies for active, organized aid in opposing the antivivisection bill which has since been so decisively defeated, made their request in the full realization of two things—that the doctors were individually busy with their own affairs and that some of the smaller societies might have difficulty in getting together effectively. Nevertheless they felt that in an emergency affecting medical principles so vitally, a ready response could be depended upon; and to say that they were not disappointed does not sufficiently express their satisfaction with the results. Besides the reports received and published in the September *Colorado Medicine*, a number of statements have been received from other county societies giving assurance of local work being done in the way of newspaper publicity, lectures and individual effort.

The State Society can now feel that when organized effort is wanted for purposes of import to the profession, it will be forthcoming upon proper expression of the need.

The Secretary extends the thanks of the parent body to the officers and members of constituent societies and assures them that to their help is due in no small part the defeat of Colorado's Death Bill.

"A CHALLENGE TO LAWYERS."

The above is the title of an editorial in the *Rocky Mountain News*, dated November 3, 1922. It starts out with the following extract from an appeal contained in a circular issued by the Illinois Society for the Prevention of Crime: "Medical Science has accomplished wonders in the prevention of plague, sickness and premature death. Why don't the legal profession do likewise in the prevention of crime?" After commenting upon the quotation, the *Rocky Mountain News* editor continues: "Medical Science today boasts of the elimination of yellow fever, the subjugation of smallpox, the reduction of typhoid and tuberculosis, the wiping out of the hookworm, the banishing of cholera from civilized communities, and many other triumphs for a program of prevention which becomes increasingly intelligent and effective. Why should not the prevention of crime be as much the enthusiasm of the legal profession? Why not?" It is indeed a timely question and a very important one.

Medical science aims to prevent not only cancer, tuberculosis, smallpox, and their accompanying horrible physical manifestations, but it concerns itself just as much with prevention of disease of the mind with its resulting disasters. It is here that medical science is in a position to render the legal profession most valuable service with regard to the prevention of crime.

That a very considerable percentage of crime is due to disease of the mind can be proven even to the most skeptical mind, provided he will disabuse himself of preconceived notions

and erroneous ideas as regards crime and mind. It must be remembered that the mind, the most intimate and precious of human possessions, has, from time immemorial, more than anything else resisted analysis. It is largely because of this resisting analysis that there are so many superstitious and mysterious ideas and explanations regarding mental processes. With the progress of science in general and medicine in particular the mind has not escaped exploration, and we have gradually learned a good deal about it—both in its normal and diseased states.

Psychiatry has for a comparatively long time recognized that many of those who kill, and of those who steal, cheat and defraud, or sell themselves on the streets, are victims of a diseased mind. It matters not whether the disease is technically known as idiocy, imbecility, constitutional inferiority, dementia praecox, paresis, psychic equivalent or what not. The fact is that the brain, the controlling organ of the body, the seat of ideation, emotion, and volition is diseased, distorted or defective in one way or another. Medical science knows that crime caused by these defects can be prevented, and if it can be prevented, why should it not?

How the legal profession concerns itself with what medical science knows about certain criminal actions was well illustrated in the recent notorious Turley trial. Six alienists, appointed by the court, unanimously testified that for many months prior to the commission of the horrible crime, the defendant suffered from an unmistakable disease of the mind. Their opinion was corroborated by an expert serologist, also appointed by the court. The testimony given by those experts was in strictest accord with scientific principles. In a true sense, it was not only the opinion of the seven Denver men, but it was the opinion of the very science of medicine. In a way they pronounced the verdict of the jury which is empaneled in the Rockefeller Institute for Medical Research, the Pasteur Institute, the Paris Academy of Science—in a word, the verdict of the jury empaneled the world over wherever medical research is going on.

This scientific evidence was contested by a layman, a lawyer well trained in the art of oratory and gesticulation and not any too scrupulous in quoting medical authorities, and not embarrassed by excessive regard for the truth. For the consideration of twenty-five thousand dollars, just five times the amount paid all the seven medical experts combined, he "proved" that not only was the victim's mind not diseased or abnormal, but that he was unusually clever and had a perfect brain.

It was pointed out in the columns of this journal that the conviction of Turley probably cost this state close to twenty-five thousand dollars. It may not be out of place to emphasize here again that long before the commission of this crime, the murderer had been charged with and convicted for numerous minor legal offenses which were the direct result of his diseased mind. A junior medical student could have then recognized the condition. Had the legal profession had the enthusiasm with regard

to prevention of crime that the doctors have in the prevention of disease, it would have taken the trouble to find out the difference between crime committed by the habitual criminal and that due to mental aberration. One horrible crime, the killing of Mrs. Wise, could at least have been prevented, to say nothing more of the tremendous and unnecessary expense.

The very recent Ransom case which enjoyed quite a little publicity, is perhaps worthy of notice with regard to the question of crime prevention. It is a miniature Turley episode and like its twin monster has a lesson to it. Briefly stated it is as follows: Ransom was arrested by a police officer because he had "acted funny". As the officer could not explain his "funny actions" he thought him drunk, arrested him, and charged him with violation of the eighteenth amendment and disturbance of the public peace. He continued acting funny even before the bar of justice, so the judge sentenced him to the county jail. In his new dwelling place he acted "naughty", was going to instruct the warden how to run the jail and "have a system to it". He and the warden disagreed upon the principles of prison management and the warden decided to put him in the "cooler".

In the process of application of this therapeutic measure, a struggle ensued between the victim, the warden and a jail guard. When the prisoner found himself in the "cooler" he was the same Ransom plus a good sized hematoma on the right parietal region, a similar one on the left frontal, and a third one on the lower cheek. As the treatment did not exert the least beneficial influence on the "convict" he was removed to the insane ward of the county hospital. He was found to be suffering from paresis. He died thirty-six hours following his arrest.

Three weeks afterwards, his body was exhumed and in the presence of twelve men (a grand jury) two representatives from the district attorney's office, two alienists and a pathologist, an autopsy was performed.

After that a legal battle lasting for days took place. Both the defense and the state employed excellent legal talent. Days and days were consumed in arguing technicalities. Objections were "sustained" and "overruled". Every detail of the case was minutely analyzed before the judge and jury to prove one lawyer's viewpoint, only to be disproved by the analysis of the opposing attorney. The main issue, namely, that there can be no mental activity, normal or abnormal, that is independent of the brain, was entirely overlooked.

In this case the crime is not at all in the fact that Ransom acted "funny" or "naughty", for he was sick, mentally sick, and was no more responsible for his action than a patient is responsible for his behavior in a delirium in typhoid fever or pneumonia. He was sentenced to jail not because of a deliberate injustice or lack of ordinary human leniency such as is within the power of the judge to exercise. Very likely the therapeutics accorded him in the "cooler" in the county jail were not due to

mere menace on the part of the warden. The trouble lies in the fact that the legal profession as a whole lacks the necessary enthusiasm for initiative in the prevention of crime, for if it possessed this enthusiasm, it could not possibly fail to see the very frequent association of crime and mental disease. A proper understanding of the close relationship of these two would undoubtedly be reflected on the various executive officers of the law from the policeman up to the jail warden. If these officers only had the idea that crime might be due to mental disease, the Ransom case, and the numerous variations of the Ransom case, would never occur.

Aside from the standpoint that human kindness demands of all of us, lawyers or doctors, that we shall look upon every person who is mentally disordered as one who has a claim upon our compassion, particularly so because his highest faculties have become clouded or destroyed, such an attitude would also result in a big economic investment. By the time expenses of the grand jury, the regular jury, the district attorney's office, the judge and his personnel, and the numerous other persons involved in such a case are paid, the people's pocketbook will be relieved of many thousands of dollars.

As an illustration of the economic side of the question, one might take our Juvenile Court. Here the fact of the mutational relationship between brain and mind, physiologically as well as pathologically, with regard to behavior is properly taken. It is largely because of this attitude that the Denver Juvenile Court is studied the world over as something unique. It indeed prevents many a future crime and readjusts many an ungeared young mind, thus saving the taxpayers considerable expense.

Psychiatry could and should be a great aid to the jurists in the prevention of a large percentage of crime. Psychiatrists and the medical profession as a whole are ready and anxious to cooperate with the legal profession in the prevention of crime. Let us hope that the challenge to lawyers expressed in the editorial column of the Rocky Mountain News will not remain a voice in the wilderness.

L. V. T.

MEDICAL EDUCATION OF THE PUBLIC.

Physicians, of necessity, in their preparation for their life work, have acquired a knowledge of pathology and disease which is such an intimate part of their mental life that it is difficult for them to understand the attitude of the lay public when their public health measures are opposed or when the antimedical movements of cults or mentally erratic individuals are supported in what they feel to be an unwarranted manner. This everyday knowledge of the doctor becomes all the more ingrained with the practice of his profession so that his intolerance of opposing views, no matter how well founded, may become so marked as to be obnoxious to the public, and he is looked upon more or less as a member of an unfair and prejudiced class. If, however, he will hark back to his premedical days and recall just how little he knew at that

time about the actual material body damage involved in many diseases he may be better able to correctly analyze the public feeling of today; and he can see that even an intelligent and otherwise well-educated citizen, being ignorant of the facts of medicine, and hearing perhaps of certain failures of medical treatment while its successes are not made public, might still consider disease somewhat of a mystery with which doctors and cults alike are only tampering; and so take up with such methods of treatment as appeal to his whims. The public at large is not able to distinguish between a disease or physiological disturbance which is amenable to mental therapy and one in which there is actual tissue destruction and which all the faith and suggestion in the world can not overcome.

The doctor rightly feels that if all people knew as much about the diseased human body as he does there could be no sane opposition to regular medicine; but they do not. The remedy, then, is to educate them in medical matters, and it would seem that the time has arrived when a definite propaganda program should be instituted. The averseness of the individual doctor to advertising of his wares is, it is needless to say, not only commendable but is one of the inherent principles involved in keeping medicine within the bounds of public respect and best service to humanity. On the other hand, education of the public emanating from the profession as an organization and not as individuals would be a measure whose object could not honestly be construed as that of creating "business" for the individual but would be the spreading of scientific knowledge and the improvement of the human race—a public health movement. What, then, are the legitimate avenues of reaching the public?

- (1) The public press, including periodicals;
- (2) Special journals devoted to the subject of health which would be edited in a popular vein;
- (3) The organization of Public Health Leagues in various cities and towns which would be composed of both doctors and laymen and which would provide means of putting before the public medical, hygienic and sanitary questions for their guidance and decision;
- (4) Teaching children in the public schools a great deal more about physiology and pathology than they are now being taught.

These several lines of action are not mentioned as theories only, for some of them are already in use, and it appears in that regard that we are in the midst of one of those waves of enthusiasm which characterize popular movements, the psychology of which is not easy to understand but whose presence is definite. So-called Public Health Leagues or organizations under similar names are now in existence in a number of states, among which may be mentioned Washington, California, Maine and Oregon. These organizations are not ostensibly, nor are they in all cases really, doctors' organizations, but of course the profession is a large factor in them because of its special knowledge. They serve not only to advise the public about iniquitous legislation but also to systematically

furnish propaganda on general health matters. These organizations by affiliating with other civic bodies and having occasional joint meetings with them can accomplish a great deal.

Action was taken at the last meeting of the American Medical Association increasing the personnel and enlarging the scope of the Council on Health and Public Instruction. It is to be hoped that besides the field work it may do the Council will undertake to publish a periodical for public distribution which will inform the public in regular issues on the accomplishments and possibilities of scientific medicine; and that it will seriously work on a plan for educating the younger generation through public school channels.

A journal has recently been inaugurated by Dr. Frederick R. Green which is entitled "Health" and will be on sale at the news stands the same as any other periodical. Dr. Green has resigned his connection with the American Medical Association to take over the editorship of this journal, and it is expected that the journal will be edited along the lines of legitimate health education which Dr. Green's long connection with the Association should render him well able to furnish.

An "American Press League", a national newspaper press bureau, in Chicago, has under consideration "a proposition to conduct an educational campaign through the columns of the public press throughout the United States in the subject of medical progress in recent years. Incidentally, the campaign will be directed towards correcting the propaganda sent broadcast by the promoters of 'cults' and 'isms'". Such a movement would be worthy of support by the profession if found to be conducted with authoritative medical advice back of it, and if limited to the use of material censored or furnished by reliable members of the medical profession.

In Colorado the remarkable success and initiative of our mushroom Association for the Protection of Public Health in defeating the antivivisection bill by six to one demonstrates what the medical profession can accomplish when it makes an earnest attempt, and it also shows a keen desire of the best citizens to assist in health measures when they have been sensibly informed. It is hoped, now that the object for which it was formed has been attained, that this organization will be perpetuated to promote further contact in Colorado between the medical profession and the public and to advance the interests of public health generally.

In the face of the advertisement and propaganda of the cults of today such as those of chiropractic and electronization, it behooves the profession as a duty to society to offset their unscientific, untruthful and vicious claims by systematic statements in popular form, widely distributed, of the simple and permanent facts relating to the cause and treatment of disease. The profession must come forth from behind its screen of dignity and aloofness and perform its public duty.

THE COLORADO TUBERCULOSIS ASSOCIATION.*

The Colorado Tuberculosis Association is supported entirely by the sale of Christmas seals. The purposes of this association, in common with other affiliated tuberculosis organizations throughout the country are: investigating the extent of tuberculosis, securing adequate provision for tuberculosis sufferers, developing nutritional work in the schools and educating the public in disease prevention, particularly relating to tuberculosis.

With a staff of three workers in the field the association carries on a state-wide health program. The hope for the future is that every county in the state will have an affiliated public health association with a full time health officer and necessary assistants who will constitute a complete health unit for the control and prevention of tuberculosis and other communicable diseases. At present there are twelve branch associations in the following counties: Denver, Pueblo, El Paso, Weld, Boulder, Larimer, Mesa, Chaffee, Prowers, Logan, Las Animas and Otero.

The work among the branch organizations comprises a very small part of the field work carried on by this association. One has only to consider the topography of the state to realize the difficulties which the field workers must encounter. They come in contact with the problems of isolation in the rural districts, the one-room schools, the lack of hospital facilities and public health nurses and the scarcity of physicians. The floating population of health-seekers in Colorado and the miners, beet workers and Mexican laborers present a health problem peculiar to this state.

At the request of interested citizens in Rocky Ford, a house-to-house tuberculosis survey was made. During four weeks one hundred and five cases of tuberculosis were reported. A vigorous campaign of education followed and the facts were presented to ten local organizations. The result was that a permanent public health association was organized and a tuberculosis nurse was employed. The work has since grown to include the entire county.

Other tuberculosis surveys were made in Grand Junction, Cañon City, La Junta and Arapahoe county.

The demand for school nursing demonstrations was so urgent that the association employed an expert school nurse to weigh and measure the children in the following counties: Pitkin, Mesa, Delta, Montrose, Ouray, Alamosa, Bent, Cheyenne, Clear Creek and Arapahoe. The results of these demonstrations stimulated the communities to a realization of the need for health work in the schools.

No doubt the greatest contribution made to the state by the Colorado Tuberculosis Association is the Emerson Institute on Nutritional Problems which has just closed. Seventy-nine students from various parts of the state attended this institute. This means that nutrition classes will be organized for the underweight children in the

*The editor hopes to present further accounts of the work of the Colorado Tuberculosis Association from time to time.

communities represented by these students. A nutrition center will be established and an intensive campaign against malnutrition will be launched. With organized effort using the nutritional class method, Dr. Emerson says that malnutrition in Colorado can be greatly reduced.

This resumé of the work of the Colorado Tuberculosis Association has only "hit the high spots", but the purpose of it has been to seek a closer cooperation and understanding with the medical profession. This association needs the intelligent help of scientific men and women who will appreciate the value of its educational work in preventing and eliminating tuberculosis.

ELLA CYRENE BAKKE.

Publicity Secretary.

STATE BOARD OF HEALTH NOTES.

Birth Registration.*

"Man's inhumanity to man

Makes countless thousands mourn." (Burns.)

And sometimes he begins his inhumanity with the new-born, and maybe then all unconscious of the harm he is doing the new arrival.

The doctor may have done a most skillful job of accouchement, "mother and child doing well," and mayhaps collected his fee, yet his duty is not done if he neglects the official notice that a new citizen has arrived.

"I do not know the method of drawing up an indictment against a whole people," so said Edmund Burk nearly one hundred and fifty years ago, and if Mr. Burk did not know, neither can I hope to know, neither would I if I could indict the noble profession of medicine as a whole, but if I had my way, which maybe happily for me I have not, somebody would suffer for every child born into this state that was not promptly and carefully registered.

And "carefully", means that every blank on the certificate is filled out, or a good reason given for the omission. The certificate should be filled out so that it can be read; now that sounds silly, but gentle reader, just drop into the office of the vital statistician sometime, and try it.

Twenty percent of the certificates have no name for the child—utterly worthless is that certificate. Certainly nature has given the parents plenty of time in which to select a name. The stork is the only bird I know of who gives several months notice of his coming, and in the layette which contains things costly, pretty and numerous, strange that they overlook a list of names suitable to either sex.

They may call her "Birdie", and she may grow up resembling a Pterodactyl, or "Percy" may turn out to be a prize fighter, in which case he can attach an Irish cognomen, though I notice recently that many of these gentry have as their starter the name of "Izzy". Nevertheless, the attorney general gave it as his opinion some years ago, that the birth certificate is an act of

the legislature and is a legal document, and must be treated as such, and requires that it be fully and completely filled out.

The legislature makes it obligatory on the assessors to count the animals born in the state, but they are not required to count the babies; but animals are worth money—are babies? The number of deaths of infants under one year of age is a good index of the efficiency of the health work of the health officer. How can he compute the deaths per thousand, if he does not know the birth rate? And how is it to be computed if the births are not registered?

The Federal Census Bureau has recently tried out our registration, and found that we are getting about seventy-five percent of the births that occur. We have registered for the year 1921, 19,635 births; if that is seventy-five percent of the births that occurred in the year 1921, then there were 26,180 births, and we missed 6,445 babies who are not known to the state, 6,445 born, of which no official notice was taken—we do not know where they were born or when, who were their parents, etc.

"The moving finger writes; and having writ,

Moves on; nor all your piety or wit

Shall lure it back to cancel half a line,

Nor all your tears wash out a word of it."

But did you write, or, having "writ", could it be read after getting cold? Do you think the clerks in the office of the vital statistician at the capitol building are specially gifted in the art of deciphering hieroglyphics? But too often, we are sorry to say, you did not even write the legally required, morally right words that make a child born in the state a legally recognized citizen.

Now speaking of names, I read somewhere that the most desirable combination was a dactyl followed by a spondee. Look these up in your dictionary—I had to. They are too long to explain here; "Jeremy Taylor" is a good example.

Another suggestion, don't give him a name that he can part in the middle—the girls mutilate theirs in other ways—plain Mary becomes Marie, etc.

But think of "Mark Twain" having a letter before it, as "G. Mark Twain". We never could have enjoyed "Innocents Abroad" or devoured "Tom Sawyer", if the author had imposed on us in that way.

J. W. M.

A WORD TO THE MEMBERS OF THE COLORADO STATE MEDICAL SOCIETY.

You know that this journal is the official organ of your Society. You know that \$2.00 of your dues go as a subscription to the journal. Do you know also that that amount is considerably less than the journal costs? That is the case. If Colorado Medicine were run without advertising the deficit at the end of the fiscal year would be far more than could be met from the funds available; the possibility of getting along with a minimum deficit depends entirely upon the amount of advertising carried. Every bit of this material is censored carefully by the Publication Committee and not an ad is accepted which does not conform to the standards

*Editor's Note.—Colorado has been excluded from the national birth registration area because our unreported births have been so many as to make our statistics valueless and even misleading. Colorado physicians should be anything but proud of this slame. It is due to their negligence.

of advertising set by the Journal of the American Medical Association. No proprietary remedies are put before you which are not "Council-passed"; no sanatorium, apparatus, or method of treatment is advertised which is not considered entirely ethical. You are protected in this way, and should remember that because of this rigid censorship many ads are refused which if accepted would swell the receipts of the journal considerably.

You can help to keep Colorado Medicine clean by patronizing the legitimate concerns which patronize your journal. Advertisers are keen observers of results, and they advertise for results, and results only. If you will support them, they will continue to support you. If you do not, the journal will suffer as a consequence in both size and character. THE EDITOR.

SOME DENVER SMALLPOX STATISTICS.

Furnished by Dr. W. H. Sharpley, commissioner of health of Denver:

Month—	Cases.		Not	
	New Cases	Vaccinated	Vaccinated	No History
September	32	10	22	..
October	160	32	120	8
November 1 to 7.	75	9	53	13
Deaths.				
September	7	2—1, 15 yrs. ago, and 1, 50 yrs. ago.		
October	42	3—23, 53 and 59 yrs. ago.		
November 1 to 7.	25	2—65 and 70 yrs. ago.		

While there are probably very many more vaccinated people than unvaccinated in Denver, yet it will be seen that the large majority of smallpox cases were of the unvaccinated, and in the seven vaccinated who died, the most recent vaccination was done fifteen years ago.—Ed.

Original Articles

PATHOLOGY AND CLINICAL MEDICINE.*

A. G. ELLIS, M.D., COLORADO SPRINGS.

Director, Colorado Springs Clinical Laboratory.

Numerous papers are being published regarding the relation of pathology, especially the clinical laboratory, to the practitioner. Their special theme is how the practicing physician in his work can best make use of the pathologist and his laboratory findings. I believe the settling of this question should be begun while the practitioner is still a medical student. My ideas are based on twenty years' teaching of pathologic histology and postmortem work to students, combined with observations gained in the supervision of hospital laboratories. During these years I had the viewpoint of students, hospital

internes and practicing physicians. Many members of the second and third groups were of course from schools other than my own. And the impression grew that many individuals in all three groups lacked a proper appreciation of pathology in the curriculum of the school, in the hospital service and in the practice of medicine. With the desire to suggest an improvement, this paper was outlined—but not whipped into shape—while I was teaching. It was started, and has been finished, in the belief that the greatest task now facing teachers of pathology is the serviceable application of that branch to the problems met by students and practitioners of medicine.

Pathology is of tremendous value in elucidating the problems of disease. Not a few of its phases have become specialties in themselves, each with a literature and almost a language of its own. But so far as the student of medicine is concerned, much of the specialism of the subject should be abrogated—set aside in favor of plain principles and facts that can be shown of use in solving the everyday problems encountered in dealing with sick human beings. If this is properly done, there will be little need for papers on what clinicians should and should not expect from clinical laboratories. The student should progress in his medical course with pathology and its application to clinical cases as a constantly unfolding feature. Its position in his studies and his future practice of medicine should never be in doubt. Its necessity for his understanding of internal medicine and surgery should always be perfectly plain. If not, it will naturally be an uninteresting, little appreciated and illy learned branch.

To illustrate: On the ship that carried me to the Far East three years ago was a Red Cross unit of physicians and nurses on their way to Siberia. While comparing notes with one of the young medical officers of the unit, I was forced to admit I was a pathologist. He at once said he did not care much for pathology when he was a student and studied it but little; the subject was dry and uninteresting to him and he could see but little use for it in the practice of medicine. He admitted that he had since recognized the need of the branch, but the fact was very evident that he still lacked the proper viewpoint. And he always will. He will never appreciate fully the value of morbid anatomy in explaining physical signs nor will he ever know how to use advantageously the clinical laboratory in his practice. Who was at fault? Not this physician but his teachers. (I did not learn the name of his school). The pathology that students can and should learn can be made interesting to them. The student and graduate must not be allowed to form the opinion voiced by this physician. To make the branch more interesting and helpful and to apply it better is my reason for suggesting a modification in our teaching.

The plan is this. Use every instructor in medicine and surgery in our medical schools, also as a teacher in the pathological department. By the term instructor I mean every one in the department except the professor in charge.

*Read at the annual meeting of the Colorado State Medical Society, October 3, 4, 5, 1922.

These men should, with the exception of lectures, take up all the work of the pathological side—morbid anatomy and histology, postmortems, recitations. And with this method very few lectures would be needed. The entire purpose of the plan is to bring more closely together pathology and the clinical branches. It is to keep pathology out of the abstract and present it to students as the logical and positively necessary foundation for the diagnosis and treatment of disease. But few teachers of pathology, and I confess I was not one of them, are closely enough in touch with medicine and surgery to teach best their own branch. This was my only dissatisfaction in teaching pathology—that it allowed no time for clinical knowledge. Such teachers cannot drive home by illustration and clinical application the principles they are teaching. And the converse is true, that most instructors in medicine and surgery do not know well the pathology of the cases they demonstrate. This plan would furnish instruction in pathology by men who were at the same time dealing with clinical problems. Such men would not be in danger of becoming overspecialized in one branch and more or less ignorant of other intimately related branches. The clinical side would benefit by the applied pathology. The plan is not to aid either alone but to be of mutual help to each. The chief point is to tie the two together in the teaching of students. They will then remain linked in the minds of graduates and there will be no question as to the true relation between the clinical laboratory and the practitioner.

These are some of the broader views regarding this proposition. A number of more specific points in its favor need only to be mentioned:

1. The incentive to research would be greatly increased. Given the study of patients along with pathological material, real problems for investigation would be constantly presenting.

2. Instructors thus trained would be a source of qualified men for (A) higher positions in the departments represented; (B) pathologists with clinical training for hospitals and other laboratories, for which there is a constantly increasing demand; (C) practitioners with a knowledge of pathology gained in the best possible way, by teaching it.

3. Many specimens ordinarily not thus utilized, as for instance in the surgical outpatient clinics, could be secured and used by such a corps of instructors. Fresh surgical specimens are of great value in teaching pathology. With a well-stocked museum of human specimens and experimentally produced lesions, a properly developed postmortem service, and fully utilized surgical specimens from one or more hospitals, it seems probable that the time devoted to pathology could be fully and profitably utilized without an experimental course. This is not the place for the discussion of that point, but I believe there are two sides to the question of the value to students of courses in experimental animal pathology. How-

ever, if this be desired, the number of instructors would make it perfectly feasible.

4. Although the professor in charge of each department would not teach in the others, it is almost needless to say that with such an arrangement they would be in much closer touch with each other's work than with the present methods is possible. And this is highly desirable.

5. This combined pathological-clinical teaching would furnish the type of training suggested in the Report of the Committee on Postgraduate Teaching in Pathology, Dr. James Ewing, Chairman (Jour. A.M.A., 76, 868, March 26, 1921). The three-year students for the degree of Ph. D. could be given this work for their experience in teaching. They could thus be used by the college during the school session, with remission of fees that would help solve financial problems. During school vacations they could be in the hospital laboratories. I believe that with this combined under- and postgraduate work, the possibilities for developing a real live, interesting, and wonderfully instructive course in pathology would be almost unlimited.

The points above sketched are, I believe, favorable to the suggested plan. Of objections I will mention only one, that will probably occur to every person sufficiently interested to think of the proposition. Why cannot better work (teaching) be done by a specially trained staff in each department, as now obtains, than by men who are dividing their energy between laboratory and clinical work? Why should not each of these know enough of the other specialty to use it in teaching his own and thus secure proper correlation of the two? My answer is that theoretically this may be true but that practically it does not obtain. Furthermore, with the present specializing of all branches, it cannot be made to obtain because the business of the specialist is to teach all the details of his branch. This means that the student is forced to acquire many facts, and theories, that to him as a student and future practitioner of medicine are unnecessary and knowingly will be unused. We are attempting to make specialists of one hundred percent of our students instead of giving them the facts that the ninety-five percent who become practitioners will need in their daily work.

A professor of pathology was once condoling with me concerning how little the average student learns of his morbid histology and said, "In a recent examination in our school they could not even tell the difference between adenoma and adenocarcinoma". And I thought how glad I would be if after fifteen years' study of tumors I could be sure that my differentiation of these two was always correct. And so would the professor just quoted if the point were made to him. Yet he was expecting from students, after a few hours' study of tumors, a degree of knowledge that special workers do not acquire in that many years. It is this unconscious unreasonableness of the specialist that makes him attempt to teach the student all that is known and much that is supposed about his branch. And

I submit that this does not bring to students the results most highly to be desired. Therein lies the animus for suggesting this change in our methods of instruction.

Details for installing this plan of teaching need not here be considered. Individuals would not agree on them. As a matter of fact, no definite course can be laid down as the details and even the extent to which the plan is adopted will have to vary in different institutions according to the general plan of teaching in each. If the principle be adopted I believe the details can readily be worked out.

Finally, it is hardly necessary to state that the installation and working out of this plan would require the highest degree of team work on the part of the professors of pathology, medicine and surgery. It could be accomplished only with the earnest endeavor of all, in the full belief that it would mark an advance in the teaching effectiveness of each of the departments. The cooperation thus required would in itself be of great advantage to all. This closer combination of departments is suggested, therefore, not only as a help in the teaching of students but as an aid in eliminating some of the problems of the practitioner.

DISCUSSION.

O. M. Gilbert, Boulder: I think this paper of Dr. Ellis' is a most timely one, because all of us who have had to face the problem have recognized for a long time that there is a gap existing between the earlier phases of medical and clinical teaching which needs to be bridged. I know the executive faculty of the State University studied this for a long time, and it has been urged that the clinical teachers teach more pathology at the bedside; and then on the other hand, that some clinical pathology be taught in the pathological department as well. A diagnosis is not complete when you simply name the disease. It is necessary to account for the course of the disease by the pathological processes which are supposed to be going on. The method which Doctor Ellis has suggested should certainly be urged upon all medical schools. We have tried to meet it in the university of Colorado by instituting a short introduction course in medicine in the latter part of the second year. A few diseases are selected, one representing each of several types—for instance, an acute infectious disease, a chronic infectious disease, a metabolic disease, etc., in which the student is urged and encouraged to think of the disease in terms of the pathology of it, and thereby get a more logical idea of the disease process which is going on and how it manifests itself at the bedside. This is proving to be very helpful to students, and I think the result, as manifested by their work, is very encouraging. I think Dr. Ellis certainly is to be congratulated for presenting such a paper, and I know the University of Colorado authorities are very much in sympathy with his idea and are putting it into effect just as much as possible.

C. N. Meader, Denver: I want to congratulate Dr. Ellis on this paper and on the timeliness of it, though I am very sorry that it comes at a time during the session when the attendance is so small. I wish we might have at each session of the Colorado State Society some paper of this quality on medical education. As you know, we are starting to develop in this state a medical school which we hope will, as time goes on, accomplish great results. Those of us who have been interested in this process of development know that we must have behind us not only the casual attention of the medical profession in the state, but their intelligent interest and criticism. If we can have the backing of a State Society

membership who have in some measure kept abreast of developments in medical education, and who can differentiate between that which is sound and that which is not, progress of medical education will be greatly advanced. This progress everywhere in the last few years has been so rapid and so many developments have taken place that it is difficult for many who are directly concerned with it to keep abreast. Accordingly a paper like this of Dr. Ellis' is exceedingly valuable. I agree very thoroughly with the thought he has outlined and as Dr. Gilbert has said, we are attempting as far as we can to put it in practice in the school of medicine in the university. The necessity of providing such correlation is one of the prime considerations which moved the authorities of the University to put the four years of the medical school together.

W. W. Yates, Loveland: The doctor must be able, no matter how young or how old he is in practice, to recognize what departure there may be from the normal in the organ affected, and to know whether or not there is any means at his command of bringing that organ back to its physiological function. I believe a good illustration, and one that would fit in nicely here as to correlating the clinical part with the strictly pathological part of our work, is this: I heard Dr. Hectoen tell a little story once, one of his own experiences. This happened over at the Northwestern Woman's College. The young lady, who was not very good in her work, undertook to court favor by personal acquaintance with the doctor, and so she consulted Dr. Hectoen about some symptoms that her roommate had, and the doctor said, "Madam, I would advise you to consult another doctor, as my practice is all among the dead." Well, too many of us have looked upon the pathologist as being one whose practice is all among the dead. If more of us had more practice among the dead, it might be better for us. I believe in time our splendid university will more closely correlate the clinical side of medicine with the pathological side, and this will be well worthy of our best consideration.

R. H. Finney, Pueblo: I want to say how proud we are of this coming University Medical School. We do not realize it now, but we cannot help but be a part of what is coming. Dr. Meader, in connection with the medical school in this state, will be a great factor.

Even the man out in the rural districts does not have to miss entirely all the pathological side of medicine. I don't know what some of us would do in clinical medicine if we could not spend half of our time running down to the laboratory. What a pleasure it is for some of us to take a specimen of urine, blood, or spinal fluid, run down to the laboratory and watch it and wait until we see the results. We live in the laboratory about half the time, about as much time as we do in the wards. And when this school is instituted—a fortunate thing for our state—we shall all be proud, and we can run up there and see this correlation of clinical work and pathology.

Philip Hillkowitz, Denver: Dr. Ellis has rendered the society a great service by giving us a paper on a subject which is of live importance. There is an enormous demand throughout the country for trained pathologists, and while the essayist has pointed out a defect in the medical teaching of the general practitioner as to pathology, at the same time his paper is useful in calling attention to the training of pathologists who devote their lifetime to this pursuit. With the standardization of hospitals throughout the country, there are hundreds of institutions at the present time not up to the standard because of the fact that they lack trained pathologists. Moreover the medical student does not realize the importance of pathology. He is more interested in surgical technic of an operative case than in the necessity of working up the history and physical examination and then getting down to the laboratory afterwards and seeing what the tissue examination shows. If this need were more emphasized in the medical colleges by demonstrating the usefulness and necessity and prime importance of

pathology and anatomy, it would be for the benefit of all concerned. My contact has largely been with the general practitioner, the garden variety, if I may so term it. It is pathetic how he often relies too much on the pathologist; he frequently expects too much of him—he expects the latter to make a diagnosis instead of himself correlating the interpretation. Professor James C. Todd of the University of Colorado has called the attention of the American Society of Clinical Pathologists to the necessity of having a separate chair of clinical pathology in the medical schools and of bringing this to the attention of the Association of Medical Colleges. We are contemplating now appointing a committee for that purpose, also for developing trained pathologists to fill vacant posts in the hospitals. The cause of the woeful lack of pathologists is purely economic. A man uses a considerable amount of time and brain energy to master tissue pathology, which, as Dr. Ellis says, takes years, and having a foundation in pathology and in anatomy, a man can do much better economically by becoming a surgeon and internist. Therefore, what has happened? Many of those who have started out as pathologists are going into surgery or internal medicine. If we do not encourage pathologists, I don't know what the new generation is going to do. It is a very vital matter, because pathology is getting to be a more important factor every day. The pathologist is placed in a position where he is in constant and daily contact with the clinician on the case, he goes over the case with him, he really sees the clinical side as well as the pathological side, and he, therefore requires encouragement. Unfortunately, the average practitioner considers a laboratory only as an inanimate machine—you throw something into the hopper at one end and the result comes out of the spout at the other end. As was shown in the preceding paper of Dr. Downing and Dr. Harris, and emphasized by those who discussed it, a technician will never fulfill the function of interpreting results of laboratory findings. A great deal of work and drudgery is done by the technician, and under proper direction he is indispensable. The pathologist, moreover, is underpaid—I am sorry to have to talk in economic terms—the rewards of any other specialty are far ahead of what is given in compensation to the pathologist. We will have to make it so that students will be encouraged to take up pathology as a life work.

Edward Jackson, Denver: Before the discussion is closed I want to bring it back to the very practical point that was presented in the paper, that during the course of pathology for medical students, the instructors from other departments should come into the department of pathology, and show the student the connection of pathology with every practical branch of medicine. I think this suggestion is the result of years of experience, and it is a perfectly practical idea that can be put into operation. It applies not only to pathology, but it is of general application to remedy the lack of coordination all through the present medical course.

There is lack of coordination in the work of our profession. Within the last few months I received an account of a case, that had been read before an ophthalmological society, and the diagnosis was given of glioma of the retina occurring in an adult. Evidently it was not a case of glioma of the retina. It was in the official report of the society's transactions. A few weeks later I received a paper offered before the International Ophthalmological Congress, reporting four cases of intraocular tumor, two cases as of glioma of the retina occurring in adults. This was from a highly trained member of the Ophthalmological Society of the United Kingdom, one above the average of specialists. Both of these reports were based upon the report of a general pathologist, connected with a large institution, a pathologist of good standing. One of the men engaged in the work of getting together a new collection of pathologic specimens of the eye, that is now being arranged by the American Academy of Ophthalmology and Laryngology, says that a

general pathologist should not examine the eye, that he simply spoils a good specimen. The general pathologist knows so little of diseases of the eye that he is often not capable of making an expert examination of one or a correct diagnosis. There have been so many instances of that that it ought to be carefully considered in connection with this situation about the teaching of pathology. I think perhaps closer cooperation is a little more needed as to pathology than as to any other branch of medical study. But more such coordination of the teaching of the different branches is widely needed.

Dr. Ellis (closing): I am glad to hear the statements made in regard to the school of this state and the efforts that are being made to correlate laboratory and clinical branches. And I am glad also that they have decided to make the college a four-year college in Denver instead of having it separated into two different parts. I have been teaching since I graduated, and I have thought all the time that this separating of schools into two years of laboratory work at one place and two years clinical work at another was a bad thing. There is one other point to mention, and that is, while I have been teaching in the laboratory for many years, I think we are overdoing the laboratory side of medicine and not devoting enough time to clinical work. I have come to that conclusion in the last ten years. I have watched the laboratory side of medicine grow until it has reached its present great height, and am glad to say that it has started down a little on the other side, back toward the old clinical bedside teaching. I think we can drop some of our purely technical laboratory work in favor of this bed-side work. I think we can do away with quite a number of hours in almost any of the laboratory courses and devote that extra time to actual teaching of medical problems to be met by practitioners.

FIRST CARE OF EYE ACCIDENTS BY THE GENERAL PRACTITIONER.*

WILLIAM H. CRISP, M.D., OPH. D., F.A.C.S.,
DENVER.

In this age of specialization we sometimes fail to give sufficient credit for the difficult part played by the general practitioner, especially in remote country districts or industrial camps. Each of us whose practice is limited to a fractional part of the human body is apt to consider that the field he covers is one of wide scope and intricate detail. How much wider, how much more wonderful in the intricacy of its detail, must be the field of knowledge of the conscientious and intelligent general practitioner whose location is such that he cannot refer his emergencies to the abdominal surgeon, the rhinologist, the genito-urologist, or the oculist, but must rely day after day upon his own professional resources.

It is hardly surprising or blameworthy that the country or contract practitioner occasionally makes a mistake which is adverse to the patient's well-being. He would be superhuman if he did not make such mistakes. I hope, therefore, that any suggestions given in this paper will be taken as intended to help rather than to criticize. One of the duties of the specialist should be to advise the general physician and surgeon in every way that may render him more useful to the community.

Ocular injuries may occur in the display of

*Read at the annual meeting of the Colorado State Medical Society, October 3, 4, 5, 1922.

any form of physical activity. Eyes are occasionally lost in baseball, in golf, in skiing, and in the innocent pastimes of childhood. I have seen an eye lost by a small boy who fell while playing thief and policeman in his own back yard; by a tiny girl who struggled with a playmate for possession of a small penknife; and by a rather older girl who was using a pair of scissors to cut button-holes in a doll garment. But the great majority of eye injuries are received in various industrial pursuits. The farmer is by no means free from such injuries. Thus his eye may be injured and infected by a spike of barley. Or he may undertake to drive a staple into a fence, and suddenly have a piece of steel lodge within his vitreous or crystalline lens. Or he may be kicked by a horse.

The greatest number of ocular injuries in this region are received firstly by those engaged in the mining industry, secondly by machinists. The majority of such accidents consist of the lodgment of small foreign bodies on the surface of the eyeball. Less considerable in number but more serious in their results are the injuries due to blasting operations, and those associated with penetration of the eyeball by relatively small fragments of steel.

It has been my misfortune to see a large number of cases in which the apparently innocent lodgment of a very small particle of coal on the eyeball had resulted in the loss of from one-fourth to one-half or more of the vision of the affected eye. In many of these cases no mistake had been made by the mine surgeon, and frequently the patient had been forwarded with commendable promptitude to a capable oculist. It must also be admitted that, either on account of the special susceptibility of the patient or because of some irritative or infective property attaching to the foreign body, injury by coal seems to possess special malignancy. In some instances the miner does not apply for attention as early as he should. There are, however, other cases in which unnecessarily harmful results are to be attributed either to delay on the part of the mine surgeon in obtaining expert care for his patients, or to the fact that the treatment administered is not of the proper kind.

The most unfortunate example of this character which occurs to me was in a man whose eye I was compelled to enucleate after a long and severe purulent inflammation. Seemingly a small foreign particle had lodged on the cornea; and the contract surgeon, in his ignorance of the local anatomy and of the simple technic of lateral illumination, had probably mistaken some of the pigment of the iris for a foreign body, and for an hour or more he had so gouged and scraped that he had penetrated the cornea, so that a deep infection in the form of panophthalmitis was the rapid outcome.

The less dangerous lodgment of foreign particles on the inner surface of the upper eyelid hardly comes within the scope of this paper, but in passing it may be regretted that there is not more general familiarity with the very simple technic necessary for turning the upper lid and removing such particles. In my opinion

this simple procedure should be taught, not merely to every physician but to every high school student.

For the removal of foreign bodies from the cornea the requisites are not many or usually difficult. First the surgeon must recognize the location of the foreign body. This cannot always be done by inspection in ordinary illumination. Since the cornea is normally transparent, the various structures at and in front of the level of the pupil are more satisfactorily studied with the aid of lateral or oblique illumination, that is illumination coming in a direction more or less at right angles with that in which the examiner looks.

The usual recommendation is to place the source of illumination eight or ten inches to one side of the patient, usually to the right of the surgeon, who faces the patient, and then to focus the light upon the eye with a convex lens. In case of necessity the operator may look at the eye through another convex lens for the purpose of magnification. In the majority of cases I have personally found adequate for this purpose one of the smaller pocket flashlights such as are used by campers and others; especially if the light of the lamp is intensified and directed by means of a small "bull's eye" lens. Using such a lamp I have almost invariably found it possible to remove even the most minute foreign bodies from the cornea without an assistant.

The proper use of a local anesthetic is very important, and is too frequently misunderstood. A four or five percent solution of cocain is necessary, and the removal of a foreign body from the cornea should not be attempted with a cocain solution of lesser strength.

It must be remembered that even if only one eye is closed both eyes will roll upward, rendering control of the position of the affected eye impossible. It is often desirable to impress this fact upon the patient.

To instill the cocain solution, the patient should be placed with his head firmly supported, he should be instructed to look down (with both eyes open), and the operator should place the thumb of his left hand flatly upon the upper lid of the affected eye, and draw the lid upward by even pressure upon the skin from the eyebrow down to the margin of the lid. This seemingly trivial detail of technic is mentioned because its employment gives much the best control of the eyelid. A single drop of the cocain solution may then be touched to the white of the eye above the cornea.

Steady maintenance of the pressure necessary to keep the upper lid raised will prevent closure of the eye when the patient winks it, and so will insure that a proper amount of cocain is absorbed. If the eye is so irritable that it waters profusely, it should be wiped and a second drop of cocain solution instilled. More than two drops are seldom necessary, and it should not be forgotten that numerous instillations of cocain are capable of causing serious damage to the corneal epithelium.

Actual removal of the foreign body may be attempted as soon as the smarting caused by the cocain has entirely disappeared. The patient's

gaze (again with both eyes open) should be fixed upon a definite point in the room, such as will satisfactorily expose to the operator's view and manipulation the region in which the foreign body is located. For example, the patient may be told to look at the upper right hand corner of a door, window, or picture. This preliminary instruction having been given, the patient is requested to look down. My own procedure is then to hold the flash lamp between two fingers of the left hand, while with the thumb of the same hand I raise the patient's upper lid in the manner already described. The patient should then again fix his gaze upon the point in the room previously selected.

If the foreign body has only recently lodged upon the eyeball it may frequently be brushed off with cotton upon an applicator, with due regard to asepsis or antisepsis. If it struck the eye with considerable velocity or has long been subjected to pressure by the eyelid, it will need to be displaced with a small spud or other narrow pointed instrument. In case of, emergency, and when used intelligently, this instrument may be the blade of a penknife; but whatever instrument is employed must of course have been thoroughly cleansed and sterilized. Dangerous ulcers at times result from the use of unclean instruments for this purpose.

Great care should be taken that every particle of the foreign body, including in some instances a small halo of stained epithelium or corneal substance, is removed. After removal of the foreign body a mild antiseptic may be placed in the conjunctival sac. Opinions differ as to the desirability of an occlusive bandage.

It is usually well to warn the patient that after the effect of the cocaine has worn off he will be likely to suffer a good deal of pain for the rest of the day, on account of the exposure of the corneal nerves where the epithelium has been removed.

If there is severe inflammation and the eye is under suspicion that infection of the cornea has already occurred, it will be well to instill a one percent solution of atropin sulphate and to give the patient a similar solution for use every three or four hours until the danger is past. A great many more or less serious corneal ulcers probably arise from lack of attention to this very safe and simple precaution. A tiny traumatic ulcer almost never produces any effect upon vision; but the relatively small scar resulting from an infective ulcer such as may follow slight injuries often produces very material permanent reduction of vision. After thorough removal of a foreign body, by far the most vital step for the arrest of such an ulcer, in case its development has begun, is the employment of atropin sulphate solution with sufficient frequency. In such a case, the surgeon who does not give the patient any atropin for home use, but merely instills the medicine himself at intervals of one or more days, is subjecting his patient to serious risk.

Some time ago I was informed in a certain case that the surgeon, in order to prepare the eye for removal of the foreign body, had painted the eyeball with tincture of iodine (after cocaineization). The same surgeon was said to have

worked for two hours in the attempt to remove the foreign body, using very many instillations of cocaine; and was further reported to have supplemented his efforts at local anesthesia, by freezing the eyeball with a spray of ethyl chlorid. My informant may of course have been under a misapprehension, but tincture of iodine and ethyl chlorid are here mentioned merely to say that, as applied to the eyeball, they are not only unnecessary but objectionable. Furthermore, no single foreign body should require two hours for its removal, a fraction of a minute being usually sufficient after the eye has been anesthetized.

I have gone into so much detail in this matter of the removal of apparently simple foreign bodies from the cornea, because I feel that lack of understanding of the proper procedure is responsible in many instances for marked visual reduction and hence for marked economic disability. First aid of this type of cases is moreover likely to be undertaken quite frequently by the general practitioner.

In more manifestly serious injuries to the eyeball, such as lacerating injuries in which the cornea or sclera is laid open and the iris or lens exposed in the wound, the local surgeon is more apt to feel at once that he must pass the case on to an ophthalmologist. In the latter class of cases, however, while he cannot undertake prolonged care, the local practitioner may often be of very material assistance to the specialist and the patient. He may accomplish this again by the use of a solution of atropin sulphate, one percent.

Too much emphasis can hardly be placed upon the fact that, in the vast majority if not in all cases of penetrating injury of the eyeball, the very early use of atropin is urgently indicated. Employment of this drug puts the eye at rest by relaxation of the muscles of the ciliary body and iris, and so minimizes the risk of infection and of dangerous inflammation. Using a sterile dropper and solution, it is perfectly proper in such cases to instill the medicine three or four times daily, or even more frequently if indicated by the presence of pain.

Lacerated injuries of the eyelid are not frequent, but the technic of repair of such injuries is so delicate and important that it should almost invariably be delegated to a competent ophthalmic surgeon.

530 Metropolitan Building.

Addendum.—Writing at the time when this essay is about to be published, I may say that I agree in the main with all the points made by those who discussed my paper. I did not, however, attempt to cover in detail every type of eye accident, but more especially the lesser kinds of common accidents which so often unnecessarily result in great reduction of vision. W. H. C.

DISCUSSION.

J. W. Thompson, Pueblo: Dr. Crisp has covered this important subject very clearly and in detail. It is important because of the lowered vision that too frequently results from improper first treatment.

May I call your attention to the necessity of close observation for very minute punctures of the globe with entrance of foreign bodies. The wound of entrance at times is very minute and takes careful observation by oblique illumination to detect it. If the perforation is in the cornea

only a hair-like wound of entrance may be seen. If the case appears soon after the accident the anterior chamber is empty or shallow, compared with the other eye, possibly some blood in the anterior chamber, a small hole hardly visible in the iris, and the tension of the eyeball low. If the wound of entrance is in the bulbar conjunctiva there may or may not be a small sub-conjunctival hemorrhage concealing the puncture or the foreign body may have struck the ball at such an angle as to make the scleral puncture several mm. from the conjunctival puncture. In this case there will be decreased tension and possibly lowered vision, which the patient complains of, or there may be a small bleb of vitreous presenting in the wound or under the conjunctiva. We cannot be too careful in accepting the patient's history of no possibility of a foreign body entering the eye.

Another accident which calls for prompt attention and is usually seen first by the general man, is the burn by lime getting into the eye in the form of mortar. Even with the very best immediate attention the ultimate result may be all too serious. Eversion of the lids and complete removal of all particles of lime with pledgets of cotton or forceps, irrigation of the conjunctival sac thoroughly with a gentle stream of water, cold compresses, and instillation of atropine and possibly sterile oil will relieve the patient's symptoms and give the best possible results.

When foreign bodies are imbedded in the cornea, may I emphasize the removal of all the burned area and rust about the foreign body, failure to do which delays healing and leaves a stain in the cornea; also the importance of a pressure pad after an abrasion of the cornea until healed and also the application of cold when possible. With the lids closed healing is more rapid and the pain and irritation less. It also removes the possibility of infection by the patient himself, which is no small factor when one considers the many home remedies applied to the injured member.

One of the rules, on taking up the duties at the foreign body box the first six months as interne at the Wills Hospital, was to always put a pad on the eye if there was much of an abrasion of the cornea and no conjunctival discharge. It reduces the number of slight infections and makes the patient much more comfortable and frequently it is not necessary to instill atropine, which is some item if a man must use his two eyes to earn a livelihood. I continue to be a firm believer in this procedure.

Edward Jackson, Denver: Going into the minute details is perhaps more important than repeating what is generally mentioned in connection with these injuries. And one detail of the removal of foreign bodies from the cornea, I think, is very often overlooked. The difficulty, when there is any decided difficulty, is from the imbedding of the foreign body; and the first thing to do in order to effect its removal—and it is nine-tenths of the removal—is to get it out of its bed. The way to do that is not to scrape over the top, leave the foreign body there and scrape off some of the epithelium each time. But it is to put the point of the instrument used, the spud or the needle, against the foreign body, and pry or wedge it out. This is the first step in getting out the foreign body, and if it is done carefully, it is nine-tenths of the operation.

As Dr. Crisp has pointed out, there should perhaps be a little preliminary training, some manipulation of the eye, bringing the instrument before the eye, to get the patient over his fear and steadied. If there is not a perforation of the eyeball you can put a good deal of pressure on it with the two fingers. Then, when the eye is steady, thrust the instrument in on one side of the foreign body. I think the point of an ordinary sewing needle is sometimes the best emergency instrument for removing a foreign body from the cornea. If it could be a little flattened on the side and placed against the foreign body, it would help. But if it has a point not perfectly sharp, and small enough

to thrust in alongside of the foreign body to start it, you can thus get it out. But the thing is to get it out of its bed.

One other point which I think is not appreciated by the general practitioner in connection with the eye is that lacerations of the lid margin should be skillfully and carefully repaired at once, not within a few hours or a day afterward. If the practitioner has not the fine needles, forceps and some acquaintance with the technic that are necessary, he had better, if possible, get that patient to an oculist, even though it is only a slight laceration of the margin of the lid, so that it can be accurately readjusted. In the readjustment of the lid margin, a suture should be placed near the lid margin, and sometimes there should be three or four sutures, used to keep everything in good position, even if they are taken out in twenty-four or forty-eight hours, in order to get accurate apposition from the first; because if they are not accurately brought together it results in a notch at the edge of the lid, which will have to be repaired in the future.

J. A. McCaw, Denver: A case I saw recently illustrates the point that Dr. Jackson has just made about the proper approximation of the lid margins. This case was one before the Industrial Commission. The man, a year and a half ago, while employed in a mine, received a cut that began at the lid margin, severed the canaliculus of the lid and extended down on the face. The surgeon had closed the wound on the face and up to the lid margin, but apparently had made no effort to take care of the tear duct. Now, this man has a scar, and the scar intervenes between the two ends of the tear duct with ectropion. He has an infection on the nasal side of the duct. The case was presented to me by the insurance company to see if I could operate to restore that lid, and I declined to make an attempt. I said, "If this man had come into the office and asked me to do the best I could, I would try to do it." But this was a case where the mine surgeon, I believe—I don't know who he was—was evidently at fault, because there was no intelligent effort to maintain that tear passage; and the lesson, of course, is that these cases involving the delicate structures of the eyelids should be immediately referred to an ophthalmologist.

Dr. Crisp (closing): The point that Dr. Jackson made about getting in under the foreign body is often important. Sometimes it is even necessary to place the spud at right angles to the eyeball, allowing it to rest in the depression in which the foreign body lies, and then rotate the spud backward and forward between the thumb and finger, which will free the foreign body from its adhesion to the cornea. The question of a foreign body which penetrates the eyeball and shows no wound on the surface is also important. I saw a case some time ago in which the patient had received a foreign body that lodged in the vitreous, and both physician and patient believed that the foreign body was not in the eyeball. The final result, after three years of inaction, was that the eye had to come out because we could not free the foreign body from its dense fibrous adhesions in the vitreous. I don't believe the general practitioner should assume the responsibility of deciding whether or not a foreign body is still inside the eyeball. Such a case should always be sent to the specialist.

Veterans' Bureau Offers Course in Neuropsychiatry With Salary.

The United States Veterans' Bureau offers a special course in neuropsychiatry to a certain number of qualified physicians on condition that upon completion of such course they will continue in the service of the bureau for a period of at least two years thereafter. Students who are authorized to take the course and who are not already in the employ of the bureau will receive a salary of \$166 per month while taking the course. The course will start January 4, 1923. Address Dr. Frank F. Hutchins, U. S. Veterans' Bureau, Washington, D. C., for particulars.

OBSERVATIONS OF CERTAIN EXPERIMENTS WITH INHALATIONS AND INJECTIONS OF VARIOUS SUBSTANCES INTO THE RESPIRATORY TRACT.*

SALING SIMON, M.D., Denver.

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The days of empiricism in medicine are almost on the eve of vanishing and in their place we are rapidly approaching the time when to recommend a new procedure in this field without exhaustive, painstaking and complete scientific and experimental study would appear to be almost unpardonable. Too often have we seen in the past a therapeutic and diagnostic procedure introduced clinically without sufficient scientific evidence for its use, only to be discontinued with the wane of enthusiasm of its clinical advocate. Nor is it fair to condemn the physicians of former years for using such methods, when it be recalled that medical research was then unknown and even to-day is still in its infancy and the methods of proper scientific testing are available to but comparatively few. For those of us who have made mistakes, and there are few who haven't, it behooves that we urge and encourage the development of such facilities so we may err less. It is not our purpose to dwell at length on medical research, but merely to point out a few very valuable, practical and important observations on the respiratory tract made within the past year in the Research Department of the National Jewish Hospital for Consumptives.

It was during a study of the direct application of therapeutic agents into the respiratory tract that it was learned that in spite of the voluminous data available regarding the upper respiratory tract and the finer detailed tissue distribution in the lower respiratory tract there was, however, very little information in the literature regarding the immediate distribution of substances which in different forms, as smoke, fine suspensions or liquids, entered the lungs. It is true Winternitz and his co-workers¹ had found that liquids even in comparatively large amounts can be accommodated by the lungs after intratracheal injection and be absorbed, but no especial attention was paid to their immediate localization. Likewise Waters, Bayne-Jones and Rowntree² forcibly injected oil bismuth mixtures into the trachea and this material was found uniformly distributed throughout both lungs. About the nearest approach to immediate pulmonary localization studies was made by our Colorado colleagues, Mullin and Ryder³, who in very important and interesting studies in rabbits found that india ink and liquid suspensions of tubercle bacilli dropped into the nose of rabbits were aspirated and chose an apical pulmonary localization revealed at postmortem. No exact microscopic studies were, however, made by them. When Mullin

and Ryder's observations appeared studies were going on in the Research Department on the distribution and possible therapeutic application in tuberculosis of substances inhaled as fine suspensions in air, and injected intratracheally as suspensions in liquids. This was then further elaborated to include the distribution of liquid suspensions aspirated from the upper respiratory tract to corroborate and extend the studies initiated by Mullin and Ryder in Colorado Springs, it being believed that the latter would prove a fruitful field. It is needless to go into the technical details here since the complete data of all these studies will be reported elsewhere and what probably interests us most as clinicians is the practical deductions that may be drawn from these observations.

It is a well known fact that the anthracosis that occurs in the coal miner bears a certain relationship to this industrial worker's comparative resistance to pulmonary tuberculosis, so that could we control this faculty of producing anthracosis therapeutically and remove the undesirable features of anthracosis we might be well on the road to a therapy applicable to at least the early stages of phthisis; yet to attempt to merely apply smoke or soot inhalation for therapy without a full knowledge of not only the toxicologic phase of this application, but the pathologic distribution, would surely lead us into dangerous territory. It certainly would not be wise to burden an important organ like the lung with a foreign substance like carbon, capable of producing chronic tissue changes, unless to a considerable extent it localized around or in the vicinity of the diseased process and there exerted a desirable effect on the organism, while at the same time producing an unfavorable effect on the tubercle bacillus.

The studies on the inhalation of carbon suspended in air as soot revealed that the carbon was rather irregularly deposited in the air passages, and that marked immediate accumulations occurred especially on the elevations or projections seen at the bifurcations of the smaller and larger divisions of the respiratory passages, as seen in tissue sections microscopically. In contradistinction to this the alveoli were comparatively free from the inhaled carbon particles and only after inhalation had continued for a comparatively long time were thin, veil-like deposits found on the alveolar walls. From the air passages the carbon became engulfed in cells and then was carried into the tissues. In the lungs of rabbits with pulmonary miliary tuberculosis after soot had been inhaled for a long time (30 days or more) the tubercles were in many cases surrounded by a ring of carbon found as a circular or eccentric deposit. Peculiarly, however, many of the tubercles were free from surrounding carbon deposits, a fact which could not be satisfactorily explained. The deposit around the tubercles consisted of dense accumulations of carbon phagocytes which seemed to wander to the tubercle from the surrounding alveoli and finer air passages where they were found comparatively sparsely scattered. The irregular distribution of the carbon,

*Read at the annual meeting of the Colorado State Medical Society, October 3, 4, 5, 1922.

besides the lack of a satisfactory deposit around all the tubercles, would indicate that an inhalation therapy for pulmonary tuberculosis would prove inefficient. Now with liquids inspired or aspirated into the lungs conditions differed entirely, the tendency being toward an immediate aspiration into the finest respiratory divisions—the alveoli—where the liquid was rapidly absorbed and the particulate matter (the carbon in india ink) was retained for a very long time; carbon was found in the lungs to a great extent over seven months after it was aspirated in rabbits. While inhaled soot appeared to the naked eye to be fairly uniformly disseminated throughout the entire lungs, although irregularly as to the finer histologic distribution, inspired or aspirated fluid (india ink) was more patchy in its localization, which, however, conformed to certain definite laws dependent on the posture of the animal at the time of aspiration of the fluid. The distribution depended entirely upon gravity and the inspiratory suction force. During anesthesia with the head slightly elevated fluid dropped into the nose of rabbits and dogs is readily aspirated into the lungs and in the horizontal posture it readily seeks an upper lobe abode in the right or left lung, dependent upon the side upon which the animal was lying when the fluid entered the lungs. In the upright posture the fluid tends toward a lower lobe distribution, while when lying on the back it localizes posteriorly, simulating the distribution of the well known terminal hypostatic pneumonias seen in weakened individuals. Normally without anesthetics and in the natural horizontal posture it is practically impossible to obtain aspiration of fluids into the lungs after nasal instillation in rabbits and dogs, while in the upright (abnormal) posture, successful pulmonary aspiration is attainable.

The above careful studies besides being of tremendous practical value to the clinician, since they indicate the importance of posture during the administration of anesthetics, during upper respiratory tract operations and infections, during depleting diseases, during fatigue, during hemorrhages especially of the lungs, pointed out the way to produce experimentally a chronic pulmonary tuberculosis in animals, so long sought for, thus enabling us to study the various methods now clinically employed in the treatment of this disease in man. By instilling heavy suspensions of dead tubercle bacilli in saline solution into the nose of dogs with the head slightly elevated while the animal was under ether anesthesia and in the horizontal posture, lying on either the right or left side, Corper was able to produce pathological changes in the upper right or left lung of these animals which resembled in all its important characteristics chronic pulmonary tuberculosis as seen in man, except the progression which is dependent upon the reproduction of the bacillus in the lungs. These changes consisted of massive tuberculous granulation tissue formation, caseation, necrosis and massive pneumonic consolidation with multiple cavity formation. Fibrous pleural adhesions and intrapulmonary hemor-

rhages were also seen. It is thus possible by postural consideration to duplicate in animals all the pathologic manifestations of pulmonary tuberculosis as it occurs in man. With proper precautions for the worker in handling dangerous consumptive animals, it should be possible to study satisfactorily the effect of various therapeutic drugs and measures, not to mention the possibility of studying the many intricate problems concerned with the development of the pulmonary disease itself.

Comparatively little in the way of animal experimentation has been done with artificial pneumothorax so largely used clinically for a period of fifteen years in the treatment of selected cases of pulmonary tuberculosis. This has been due to technical difficulties connected with applying the procedure to animals as well as to inability to reproduce experimentally, until now, the disease as seen in man. There are, however, many problems in connection with the use of artificial pneumothorax which are little understood and which it should now be possible to study in animals.

It has been an almost universal conception that liquids in the respiratory tract are to a great extent and almost completely expectorated. Due emphasis has not been placed on the fact, brought out by the above studies, that the opposite—rapid aspiration into the finer air divisions and a retention there to cause persistent tissue damage—may be the more practical and important phase of this condition, favored by two potent factors, gravity and inspiratory suction, followed by a rapid absorption of the fluid part with a trap-like retention of the particulate matter in the most sensitive portion of the pulmonary parenchyma, the finest air divisions—the alveoli. Realizing this important fact, it can immediately be seen that the introduction of substances into the trachea or lungs except of the most inert nature for diagnostic or therapeutic purposes may be beset with inherent dangers, not to mention the actual possibility of spreading infection, already present, by intrapulmonary injections, as was found to be the case by Winternitz and Smith*. A study of the literature indicating that oils injected may not be entirely inert, and the recent recommendations by Lynah⁴ to use bismuth-oil mixtures by intratracheal injection in man for diagnostic and therapeutic purposes, and by Lukens⁵ to use chaulmoogra oil intracheally injected for the treatment of tuberculous laryngitis, made it seem highly desirable to study in animals the effect of such intratracheal oil injections upon the lungs—a study which naturally should have preceded any recommendations for such therapeutic uses in man. To our great surprise these studies revealed that even the so-called inert oils (olive oil and liquid petrolatum), which are so frequently applied to the body surfaces without apparent harm or reaction, when injected intratracheally into rabbits are retained in the lungs (alveoli) for a long time and induce a mild form of interstitial pneumonitis resembling that recently reported by Heiman and Aschner⁶

*loc. cit.

of Mount Sinai Hospital following the accidental pulmonary aspiration of zinc stearate with fatal outcome in children. When mixed with bismuth subcarbonate the detrimental action is favored and the addition of small percentages of chaulmoogra oil further enhances the unfavorable and detrimental action to the extent that with even low percentages (ten to twenty in olive oil), marked consolidations occur, while with even very small amounts (one-tenth cubic centimeter) of the pure chaulmoogra oil the tissue reaction is intense and may extend some distance away from the oil itself. The ethyl esters of chaulmoogra oil (kindly supplied by Professor Dean of Hawaii) have also been tested and were found to produce pronounced lung abscesses. Recognizing this action of these oils upon the pulmonary parenchyma following intratracheal injection, we are confronted with the practical question of the balance between diagnostic and therapeutic value on the one hand and tissue destructive or pathologic action on the other. The latter we are certain about, while the former should be determined, not clinically but by animal experimentation.

Realizing that so inert a substance as olive and mineral oils may induce a reaction in the pulmonary parenchyma, it is only natural to inquire whether any foreign substance may not involve a tissue reaction in the alveoli. For example, a consideration of the effect of hemorrhage on the pulmonary parenchyma would be of great practical importance to the clinician. It is well known that a reaction can occur in hemorrhage, resulting in an accumulation or encysting of blood anywhere in the body, as an hematoma, even though the blood thus encysted remain sterile; so that, a priori, it might be expected that a reaction to homologous blood aspirated into the alveoli might also lead to some type of tissue reaction. A study of a number of rabbits, in whom their own unclotted blood was rapidly withdrawn from the large veins of the neck and introduced into the lungs by intratracheal injection, was made. It was found that all the blood pigments had disappeared from the blood injected into the lungs within a period of five to seven days, and disintegrative blood pigment color changes, similar to those occurring elsewhere in the body, were likewise observed. There remained, however, a perceptible induration at the site of the blood in the lungs which was evident to the touch and which persisted microscopically for an interval of a month after the intratracheal injection of the blood. These tissue changes occur in cases in which complete negative bacteriologic findings for the presence of micro-organisms obtain. This observation probably accounts for the dyspnea and marked pulmonary symptoms so frequently observed in certain tuberculous patients with apparently slight pulmonary findings prior to an apparently slight hemorrhage and in whom these extensive changes clear up but slowly if at all. This retention of blood in the alveoli also probably accounts for the frequent tendency

for a rapid intrapulmonary dissemination of the tuberculosis following hemorrhage.

In connection with this study on hemorrhage, contrary to certain reports in the literature, it has been found that the loss of clotting power of whole blood introduced into the pleural or peritoneal cavities is due to a defibrination with the formation of fine clots on the viscera which occurs there, and not to any other inherent changes in the blood. Only the fibrinogen content of the blood is changed, a true defibrination occurring, with no other apparent change in the chemical composition or calcium content.

Before concluding may I point out one more practical suggestion regarding pulmonary hemorrhage which it seems to me these studies warrant? It is generally considered good practice to place the patient on the bleeding side in order to restrict the motion and breathing as far as possible on this side. Many tuberculosis specialists employ this method and personally it has served me well. This method seems logical from the experimental data obtained within the last year by us. Besides, by using this method of treatment for hemorrhage, hemostasis is promoted, since an important mechanical factor, namely blood stasis, at the local side of hemorrhage is favored. The postural treatment also tends to prevent aspiration of the blood into the opposite lung. Fishberg in the 1919 edition of his book on Pulmonary Tuberculosis, p. 654, in dealing with the treatment of hemoptysis states, "The patient is put to bed, but not in the traditional prone position. The blood and sputum must be evacuated from the respiratory passages with ease and this can only be done when the patient is in the semi-sitting position." This we certainly cannot concur in, for if any conclusions can be drawn from the animal experiments cited above they would tend to be that either the prone position or a position with the head lowermost, a modified Trendelenburg position, would favor the easy gravity and expiratory expulsion outflow of the pulmonary blood; the semi-sitting position tending toward an intrapulmonary basal aspiration of the contained blood. It seems, however, that the first duty should be to stop the hemorrhage and this can best be attained by applying the general principles of hemostasis, namely the horizontal position and rest on the bleeding side. The elimination and absorption of the retained blood after the hemorrhage has stopped is apparently taken care of subsequently and does not seem to be in any way retarded by the horizontal posture. Whether the head lowermost position is desirable in aiding the elimination of retained blood remains for future studies to determine.

I wish to acknowledge my indebtedness to Dr. H. J. Corper and his assistants in the Research Department of the National Jewish Hospital for Consumptives for aid in preparing this paper.

The detailed complete scientific reports of the work above presented will appear in *The American Review of Tuberculosis*.

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⁴Lynah, H. L.: Lung Mapping by Injection of Bismuth Mixtures in the Living, New York Medical Journal, 114, 82-5, 1921. Lynah, H. L., and Stewart, W. H.: Roentgenographic Studies of Bronchiectasis and Lung Abscess After Direct Injection of Bismuth Mixture Through Bronchoscope, Amer. Jour. Roentgenology, 8, 49-61, 1921.

⁵Lukens, R. M.: Chaulmoogra Oil in the Treatment of Tuberculous Laryngitis, J. A. M. A., 78, 274-5, 1922.

⁶Heiman, Henry, and Aschner, Paul W.: The Aspiration of Stearate of Zinc in Infancy, Amer. Jour. Dis. of Children, 23, 503-10, 1922.

DISCUSSION.

J. B. Crouch, Colorado Springs: I feel perfectly incompetent to discuss this excellent paper; yet at the same time it has many practical points that are of value to us in a clinical way. As to substances, fluids, being absorbed from the lungs, we know there are certain cases in which moisture is present and is not expectorated by the mouth. We have made from time to time clinical use of gravity in having the patient expectorate material from the lungs. We have made use of gravity especially in cases where there are large amounts of fluid in the lungs as in bronchiectasis. These patients are placed with their heads downward, and the pus is then drained from the bronchial tubes. Again, we have treated tuberculous patients by posture for a number of years. This was first brought out by Drs. Gilbert and Webb, Colorado Springs, with the idea that rest was of paramount importance, and by placing the patient on the affected side we obtained rest. By placing the patient on the affected side, the fluids which accumulate in the lungs are not aspirated over into the good side and the infection thus spread more easily to the good lung. I wonder after listening to this paper what would become of inert substances if injected into the lower lobe of the animal, whether the substance would remain in the lower lobe or whether it would gravitate to other parts by posture or even without posture we would find the substance in other parts of the lungs. Perhaps you gentlemen have already tried that. Drs. Mullin and Ryder, in starting these experiments, injected fluids into the nose of rabbits. Dr. Ryder is here this morning and I know he is much more competent to discuss this subject than I am. The only thing we might add is that we have lost sight of the fact that there is sometimes danger from intratracheal injections. People who are doing this work inject oily substances or various other substances into the trachea. We always think that there is no harm, but from this paper there is occasionally, undoubtedly, a good deal of harm done by injecting substances intratracheally. I know I have done it time and time again.

Charles Ryder, Colorado Springs: This work of Dr. Simon's and Dr. Corper's is far more serious, important, and accurate than that which Dr. Mullin and I did, especially as it relates to the distribution of substances after they are aspirated from the bronchus. We had no data on the relation between posture and distribution, and I must confess that I have no notes upon the position in which the animals were held during the process of dropping the fluid into the nose. It is my impression that the rabbits were usually held on the back in a prone position with the nose pointed up, and the fluid dropped in, but when I had not an assistant available I held the rabbit in a crouching position in the corner of a box so that it was on its belly and then elevated the head

backward. In both cases, I think we got a certain preponderance of involvement of the upper lobe, and this would be logical in the case of the crouching position and would harmonize with Dr. Simon's theory, because in that position the anterior lobe is the lowest. This rule does not seem to be illustrated in the case of spontaneous tuberculosis in man, who stands in the erect position, for the upper lobe is the lobe of choice. In cattle, the posterior lobe, which is the highest lobe in the position in which they stand and lie, is the lobe of choice. This harmonizes with Dr. Simon's observation that particulate material is not aspirated according to gravity. It is aspirated generally. Other factors, probably circulatory, account for the local development of lesions.

There are a few curious things about the differences among experimental animals. In the positions in which we gave our injections, the rabbits did not require anesthesia. We never had to resort to that. Dr. Webb and I started a series with guinea pigs, using the same technic, and found light anesthesia necessary. We think the difference is that the guinea pig has a more efficient larynx, and a higher degree of reflex irritability. By using primary ether in our guinea pigs, we had a high percentage of success. In some of these guinea pigs, however, we got no pulmonary involvement, but got a typical picture of scrofula, with very large cervical glands and a surprisingly slight generalization beyond this.

O. M. Gilbert, Boulder: There is one very interesting point brought out by Dr. Phillips of the veterinary department of the University of South Carolina in reference to the localization of deposits in the lungs. It is a well known fact that the tubercle bacillus is a much lighter organism on account of its large wax content, and thereby seeks a higher level anatomically, the streptococcus, and organisms of that variety seeking the lower lobes.

H. J. Corper, Denver: With regard to Dr. Crouch's question, I might say that it resolves itself into the fate of any inert or insoluble substances in the lower lobes of the lungs. In general, I believe that we can all recall two fairly common examples. Laryngologists know that inert foreign substances aspirated into the lungs stay there an extremely long time unless they are removed mechanically or ulcerate out. Our own experience shows that after the pulmonary inspiration of India ink, the particulate matter in the ink was still perceptibly present in the lungs after nine months in rabbits; this is analogous to the findings obtained in tattooing. India ink tattooed into the skin remains a long time, therefore it is reasonable that it will stay in the lungs for at least as long a period. Regarding White and Gammon's work cited by Dr. Gilbert, the conception originated with them that tubercle bacilli reached the lungs by way of the blood stream, but this work is very much in the class of that done by Bacmeister on thoracic aperture restriction of the chest; the wire loop experiments are familiar to all of you but other investigators have been unable to corroborate this work. It looks to me a bit impractical and possibly based more on theory than practice.

Trachoma is a well-nigh universal disease among the natives of many parts of the East. According to a report on Public Health in Palestine, an average of 74 percent of school-children are affected, in one district the percentage rising to 95. Similar figures hold good in Egypt. Where good conditions of hygiene can be established they are eminently successful in preventing the spread of the disease, as was proved by the almost complete immunity enjoyed by British troops stationed in Egypt during the late war. School inspection and hospital treatment exert their good results by controlling the spread of infection among the school-children, by shortening the active infective stages both by medical and surgical measures, and by counteracting the effects of the late or cicatricial stages chiefly with surgical measures.

Minutes of the House of Delegates of the Fifty-Second Annual Session of the Colorado State Medical Society

Held at Colorado Springs, Colorado, October 3 to 5, 1922

First Meeting of the House of Delegates, Oct. 2, 1922

The House of Delegates met at the Antlers Hotel, Colorado Springs, and was called to order at 8 p. m. by the President, H. A. Smith.

The Secretary called the roll and the President announced a quorum present.

The Secretary then read a letter from the Secretary of the State Medical Association of Texas, introducing Dr. W. N. Wardlaw, of Childress, Texas, as Fraternal Delegate. Upon motion, seconded and carried, Dr. Wardlaw was ordered to be received as a Fraternal Delegate upon his arrival.

Upon motion, seconded and carried, the minutes of the previous meeting, as published in the November, 1921, issue of Colorado Medicine, were adopted with the following correction: That note be made of the presence at the meetings of Dr. Alexander R. Craig, Secretary of the American Medical Association and member of the Medical Society of the State of Pennsylvania, mentioned improperly in the minutes of the general meetings as representing the Illinois State Medical Society.

The report of the Committee on Credentials was then read by the Secretary, and is as follows:

REPORT OF COMMITTEE ON CREDENTIALS.

Society.	Number of Members Dec. 31, 1921.	Dele- gates.
Unattached	1	
Arapahoe	9	1
Boulder	43	2
Chaffee	8	1
Delta	20	1
Denver	473	19
El Paso	94	4
Fremont	19	1
Garfield	13	1
Huerfano	9	1
Kit Carson	11	1
Lake	13	1
Larimer	31	2
Las Animas	29	2
Mesa	23	1
Montrose	11	1
Morgan	12	1
Northeast	27	2
Northwestern	9	1
Otero	25	1
Prowers	16	1
Pueblo	62	3
San Juan	14	1
San Luis Valley	22	1
Teller	6	1
Weld	31	2

Total membership De-
cember 31, 1921, by

which apportionments are
made 1,031

Total delegation 53

Total delegates seated, 41.

The Committee has received the credentials of Dr. W. N. Wardlaw, who comes as a Fraternal Delegate from the State Medical Association of Texas, and recommends that Dr. Wardlaw be tendered the privileges of the floor.

F. B. STEPHENSON, Chairman,
WM. M. SPITZER,
H. A. BLACK.

A. C. Magruder then made an announcement on behalf of the Committee on Arrangements.

The President then appointed the following committees:

Reference Committee on Reports of Officers—Edward Jackson, Chairman; Philip Work, E. W. Knowles.

Reference Committee on Reports of Committees—Melville Black, Chairman; I. B. Lahmer, W. W. Crook.

Reference Committee on Miscellaneous Business—J. R. Espey, Chairman; F. G. Dutton, D. A. Strickler.

Committee on Appropriations—D. A. Strickler, Chairman; Geo. W. Miel, J. J. Pattee.

The following Committee on Nominations was elected by ballot from nominations made from the floor:

J. R. Espey, J. J. Pattee, G. P. Lingenfelter, A. L. Trout and C. R. Arnold.

The Secretary, F. B. Stephenson, presented his report, which, on motion seconded and carried, was referred to the Reference Committee on Reports of Officers. The report is as follows:

REPORT OF THE SECRETARY.

The Secretary can not report any change of policy in handling the affairs of the Society. He has tried to take his part in keeping the various constituent societies informed and active as to questions at stake which concern the profession, this both by frequent correspondence and by use of the columns of Colorado Medicine.

The Society is again reminded that so long as the secretaryship is in the hands of a practicing physician it can not expect labor in the capacity of a field secretary from the incumbent, and this fact leads me to again direct your view to that time in the future when a whole-time secretary may be employed for active organization work.

Feeling that the initiated antivivisection bill was a legislative proposition to which this Society should give active opposition, the executive officers of the Colorado State Medical Society issued a call to all constituent societies, inviting and urging them to bring their aid to the Colorado Association for Protection of Public Health. It is gratifying to report that the

majority of these societies, even to some of the smaller ones with scattered membership, have reported successful agitation in their communities through public speaking, engagement of newspaper aid and the calling of special meetings. Some of these reports have been published in Colorado Medicine.

It is suggested that this Society endorse and lend its aid in as far as possible to the Cancer Week campaign of the American Society for the Control of Cancer which will take place in November.

There have been no societies dropped since the last annual session. The Arapahoe County Medical Society is an acquisition to our ranks through charter which was authorized at our last session. It is active and has a present membership of 11.

Following is a statement of membership and dues as of September 30, 1922:

Reinstatements and New 1921 Memberships Since Last Annual Session.

Society.	Members.	
Denver	20	1921
Delta	1	Dues
Las Animas	1	Paid
Weld	2	
Unattached	1	
	25	\$75.00

Active Membership for 1922.

Society.	Members.	
Arapahoe	11	1922
Boulder	47	Dues
Chaffee	7	Paid
Delta	21	
Denver	469	
El Paso	100	
Fremont	21	
Garfield	12	
Huerfano	9	
Kit Carson	11	
Lake	11	
Larimer	29	
Las Animas	25	
Mesa	19	
Montrose	9	
Morgan	12	
Northeast Colorado	29	
Northwestern Colo.	10	
Otero	24	
Prowers	20	
Pueblo	75	
San Juan	11	
San Luis Valley..	22	
Teller	5	
Weld	31	
Unattached	1	

Total active members	1,041	\$3,123.00
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Total Receipts Remitted to Treasurer..\$3,198.00

Active membership 1921, last annual report

Active membership, September 30, 1922...1,041

Increase

Died—Active

Honorary

Associate

Removals to other states.....

Total Vouchers issued

F. B. STEPHENSON, Secretary.

The Treasurer, W. A. Sedwick, presented his

report, which was referred to the Auditing Committee.

The report is as follows:

REPORT OF THE TREASURER.

From October 5, 1921, to October 2, 1922.

RECEIPTS.

Cash brought forward	
from last report.....	\$ 2,586.51
Liberty Bond, face value	1,000.00
From Secretary, for dues	3,198.00
From Editor, Colorado	
Medicine	2,601.33
Interest on savings account	70.24
Interest on Liberty Bond	42.50
Jubilee Volume Fund..	1,575.00

Total of balance on hand, bonds and receipts	\$11,073.58
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DISBURSEMENTS.

Journal Maintenance.

Western Newspaper Union, printing journal	\$ 3,017.45
Western Press Clipping Co.	33.00
F. B. Stephenson, Editor's salary	300.00
F. B. Stephenson, advertising commissions and expense acct.	604.13
Incidentals, postage, engraving and envelopes	38.98
Mrs. C. B. Haynes, salary, editor's clerk....	120.00
Postmaster, required deposit	25.00

\$ 4,138.56

Secretary's Office.

Secretary's clerk salary..	\$ 120.00
Secretary's salary	200.00

\$ 320.00

Library.

C. R. Troth, books.....	\$ 117.95
D. Appleton Co., books..	17.50
Paul B. Hoeber, books..	6.75
W. H. Kistler Stationery Co., binding	7.50

\$ 149.70

Incidentals.

Kendrick - Bellamy Stationery Co., stationery	1.00
Hotel bill, Dr. F. W. Bancroft	5.00
Printing, badges, envelopes, Constitution and By-Laws, membership certificates, etc.	187.10

\$ 193.10

Public Policy and Legislation.

To Committee on Public Policy, typing and photographs	\$ 5.45
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\$ 5.45

Reporting Annual Meeting.

Carpenter & Peters, for reporting meeting ...\$	222.18	
		\$ 222.18

Programs and Postage.

The Baltes Co., pro- grams and postage, 1922 meeting\$	116.00	
		\$ 116.00

Jubilee Volume.

Miss Aimee Louise Bishop, salary, inci- dentals, supplies, type- writer, etc.\$	665.78	
		\$ 665.78

Grand Total	\$ 5,810.77
Total Receipts	\$11,073.58
Total expenditures ...	5,810.77

Balance on Hand	\$ 5,262.81
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ON HAND.

Liberty Bond	\$ 1,000.00
Savings Account	2,113.62
Balance Commercial Ac- count	2,149.19
	\$ 5,262.81

Respectfully submitted,
W. A. SEDWICK, Treasurer.

No report being presented on behalf of the Librarian, that order of business was deferred.

There being no member present to report for the Committee on Scientific Work, that order of business was passed.

D. A. Strickler requested further time in which to make report on behalf of the Committee on Public Policy.

Geo. A. Moleen then presented the report of the Publication Committee, which was referred to the Reference Committee on Reports of Committees.

The report is as follows:

REPORT OF THE PUBLICATION COMMITTEE

The Publication Committee submits the following report for the year ending October 1st, 1922:

There have been twelve numbers of **Colorado Medicine** issued since the last annual report of the committee, approximating 500 pages of matter divided as follows:

Reading matter	272
Advertising	208
Papers read at the last annual session....	25
Other original articles.....	27
Editorial comment	51

Membership roll December, 1921; Proceedings of the House of Delegates, 1921 session; Proceedings of the General Session, 1921; Constituent Society Proceedings, News Notes, etc.

Financial Statement.**RECEIPTS.**

From advertising and other sources, as shown in report of the treas- urer	\$2,601.33
Membership per capita of two dollars as provided in the by-laws of the Society	2,082.00

\$4,683.33

DISBURSEMENTS.

Salary of Editor	\$ 300.00
Salary of Editor's clerk..	120.00
Commissions on advertis- ing	588.78
Printing and mailing (12 issues)	3,017.45
Postage, stationery, hand delivery (Denver), press clippings and incidental expenses	112.33
Total	\$4,138.56
Balance unexpended	544.77

\$4,683.33

Assets accruing to the Society not above enumerated include:

Books reviewed and placed in the Library..	41
Periodicals	10
Journals (exchange files).....	69

The Committee is pleased to report an unused balance of the amount appropriated for the publication of **Colorado Medicine**, but desires to call attention to the fact that in view of the high cost of printing, a small type has been employed, that this detracts from the appearance of the Journal typographically, and therefore recommends the resumption of the larger face of type.

The Committee would again call to the attention of the Secretaries of the Constituent Societies that they can greatly aid the editor by forwarding news items, thereby increasing the value of this important and interesting department.

The Publication Committee desires to express its appreciation and thanks to the Editor, Dr. Frank B. Stephenson, for his economical and efficient management of the Journal, especially in view of the difficulties of the past year.

Respectfully submitted,

GEO. A. MOLEEN,
Chairman,
PHILIP HILLKOWITZ,
WM. H. CRISP,
Publication Committee.

Geo. P. Lingenfelter requested further time to report on behalf of the Auditing Committee.

C. N. Meader, Chairman of the Committee on Medical Education, not being present, a report from that Committee was deferred.

W. V. Mullin then presented a verbal report on behalf of the Committee on Arrangements.

There being no one present to report on behalf of the Committee on Social Medicine, this order of business was passed.

The Secretary then read the report of the Committee on Cooperation with the State Pharmacal Association.

The report is as follows:

REPORT OF COMMITTEE ON COOPERATION WITH THE STATE PHARMACAL ASSOCIATION.

Your Committee on Cooperation With the State Pharmacal Association reports as follows:

1st. That the present day commercialized basis upon which a great majority of pharmacies are conducted, precludes any cooperation with the medical profession.

2d. That until the pharmacists of the state are awakened to the fact that present existing conditions, business methods, and counter prescribing, the latter eliminated, and the former two corrected, there can be no basis for expecting cooperation from the medical profession.

3d. That at least a few of the pharmacists are far sighted enough to see the results of the present trend of pharmaceutical affairs, is evidenced by the enclosed paper, read before the Colorado Pharmacal Association, at its last annual meeting, and made a part of this report.

The article follows:

"COOPERATION WITH THE MEDICAL SOCIETY."

"Presented at the Thirty-third Annual Meeting of the Colorado Pharmacal Association by Harry S. Heffelfinger."

"In the past sixty days I have interviewed about seventy-five, or more, M.D.'s as to some way in which the Pharmaceutical Association could get in closer touch with the medical associations throughout the country. Not as individual doctors and druggists, but as associations, clubs or groups. The answer has, to a very great extent, been 'Send a representative man or committee of druggists to our county or state meetings; ask a member of our State Society to your meetings; if a state meeting, ask him to submit a paper on the doctor's side of the question.' The oratory of some good talker in the medical profession certainly should be equally as interesting, instructive and profitable as the oratory of some efficiency salesman. We have in Colorado in medicine a great many men who are recognized as high class men in the profession and have been honored in the councils of the profession in all the different congresses representing the different special work of the profession and in the A. M. A. as a whole. Why not pay some such man for his time to make a talk before the State Association of Retail Druggists? We pay men to give us information as to the best manner in which we can sell an electric apparatus that will cure all the ailments that human flesh is heir to, and I had the pleasure of hearing one of said orators cite instances wherein the application of the so-called Violet-Ray had cured ingrowing toenails, tonsillitis, and had no doubt that the immediate application would act as a prophylaxis in rabies, and argued that for that reason one should be sold in every well regulated family. It is just such extravagant misrepresentative statements and claims that are gradually drawing the doctor as an individual away from the pharmacy, not only for his own personal supplies, but his influence as well. The tendency to suggest a remedy to every one coming into a drug store has become so great that the doctor is inclined to look with disfavor, to a greater or less degree, upon the modern drug store. He claims, and has, I am sorry to say, pretty just cause for such claims, that the druggist, either by word of mouth, or by paid 'readers' in the newspapers such as now appear quoting some trade name for specific drug with the addition of syrup of Sarsaparilla, is suggesting this or some well known simple remedy as a cure. I cite an instance of the Secretary of the State Board of Health going into a drug store the other day and complaining of a cold. The boy at the soda fountain said that they had a special cold tablet that was a cure of any and all sorts of colds, and if taken in connection with a certain expectorant was an absolute cure. The doctor did not make a purchase, but he did comment on the incident at a meeting of one of the medical clubs in Denver recently. The pharmaceutical manufacturing companies, with but few exceptions, are, in a large measure, helping to deprive retail druggists of a large part of the physician's prestige and direct patronage. We who

are in business west of the Missouri river are singularly fortunate that the dispensing physician is only in embryo. He is not a reality as yet, but unless some measure is devised to combat the growing tendency to dispense we in the west will be in the same category as the man in the east, and the young man who contemplates taking a two or three year course in pharmacy might better save his money and take a correspondence course in how to cook a ham. Now then, how are the doctor and druggist going to get together and make the pharmacy an institution instead of a joke? The medical profession is sincere in its desire to alleviate suffering and cure disease, and through its influence has been able to obtain vast sums of money for research work and laboratories and hospitals for the same. It does seem as though the colleges of pharmacy should, in some measure, be in a position to develop talent enough to cooperate with the schools of medicine and if by no other way, say by legislative enactment, dictate who shall dispense that which is a medical agent. The members of the medical profession are a powerful political organization. Why not the pharmacist play politics a while and eventually get in a position where we can say we want so and so and can get it? It is possible there are plenty of men in pharmacy who have the ability to represent the people, and by combination with the physicians a propaganda could be inaugurated that would be far reaching in its influence for the betterment of the pharmacist in particular and the public in general. About forty years ago I was called upon by the Nebraska State Pharmaceutical Society to read a paper. In that paper I had a dream and in my dream I saw in a museum the druggist's plaster iron, pile tile, and iron mortar. I also saw a girl at a machine in Detroit making pills, pleasing to the eye, pleasant to the taste, and easy to swallow. That girl has taken the place of a good many men when it comes to making pills under the old regime, when we all had to roll our own. I have no complaint to offer as to the changed condition as to the labor entailed in the manufacturing end of the retail drug business, but I do hope to live long enough to see the pharmacist recognized as something besides a dispenser of electric curling irons and lawn mowers, though the lawn mower is an absolute medicinal agent, as is the wash tub—because from authentic clinical reports, people who use them most are absolutely free from stomach and bowel disorders, and being a selfish druggist I object to their sale, as it interferes with the sale of my specific for dyspepsia. And, after all, let us court the physician in our National, State and City Society and personally, and see if we cannot win back his confidence by a more ethical conduct of our business."

Respectfully submitted,

H. W. STUVER, Chairman,
R. L. DRINKWATER.

Edward Jackson then read the report of the Committee on Medical Literature, which was referred to the Reference Committee on Reports of Committees.

The report is as follows:

REPORT OF COMMITTEE ON MEDICAL LITERATURE.

Books received through Colorado Medicine, Sept., 1921, to Sept., 1922.

Anders, J. M.—Textbook of the Practice of Medicine.

Powell & Hartley—On Diseases of the Lungs

and Pleurae.
 Otis, E. O.—Pulmonary Tuberculosis.
 Wilder, Foley & Ellithorpe—Primer for Diabetic Patients.
 Cramp, A. J.—Nostrums and Quackery.
 Garrison, F. H.—Introduction to the History of Medicine, 3rd ed.
 Campbell, W. F.—Textbook of Surgical Anatomy.
 Atkinson, D. T.—Treatise on Cataract.
 Practical Med. Ser.—General Surgery, 1920.
 Practical Med. Ser.—General Surgery, 1921.
 Shattuck, G. C.—Principles of Medical Treatment, 5th ed.
 Ormsby, O. S.—Practical Treatise on Diseases of the Skin, 2nd ed.
 Morrow, A. S.—Diagnostic and Therapeutic Technic, 3rd ed.
 Schachner, August—Ephraim McDowell.
 Dorland, W. A. N.—American Illustrated Medical Dictionary.
 Brill, A. A.—Psychoanalysis, 3rd ed.
 Stelwagon & Gaskill—Treatise on the Diseases of the Skin.
 Danysz, J.—Evolution of Disease.
 Moynihan, Sir Berkeley—Spleen.
 Alvarez, W. C.—Mechanics of the Digestive Tract.
 Grulee, C. G.—Infant Feeding.
 Ewing, James—Neoplastic Diseases, 2nd ed.
 American Medical Asso.—Cosmetic Nostrums and Allied Preparations.
 Burr, C. W.—S. Weir Mitchell Oration.
 Gittings, J. C. & Others—Tuberculosis in Infancy and Childhood.
 Practical Medicine Ser.—Nervous and Mental Diseases, 1921.
 Eye Sight Conservation Council—Eye Conservation in Industry.
 Weber, F. P.—Relations of Tuberculosis to General Bodily Conditions.
 Howell, W. H.—Textbook of Physiology, 8th ed.
 De Schweinitz, G. E.—Diseases of the Eye.
 MacCallum, W. G.—Textbook of Pathology, 2nd ed.
 Hill, L. W.—Practical Infant Feeding.
 Crile, G. W.—Thyroid Gland.
 Stookey, Byron—Surgical and Mechanical Treatment of Peripheral Nerves.
 Dunning, W. M.—Submucous Resection of the Nasal Septum.
 Scott, R. J. E.—Hughes' Practice of Medicine.
 American Medical Asso.—New and Non-official Remedies, 1922.
Books purchased for the Medical Library from the fund allowed by the State Society, Sept., 1921, to Sept., 1922.
 Ochsner, A. J.—Surgical Diagnosis and Treatment, vol. 3.....\$ 9.00
 Berman, Louis—Glands Regulating Personality 3.15
 McCarrison, Robert—Studies in Deficiency Disease 9.00
 Hawk, P. B.—Practical Physiological Chemistry, 7th ed. } 6.30
 Sutherland, G. A.—Heart in Early Life }
 Ochsner, A. J.—Surgical Diagnosis and Treatment, vol. 4..... 9.00
 Sherman & Smith—Vitamins..... 3.60
 Stoddard, W. H. B.—Mind and Its Disorders, 4th ed..... 6.75
 Asso. for Research in Nervous and Mental Diseases—Acute Epidemic encephalitis 2.25
 Polak, J. O.—Manual of Obstetrics, 2nd ed. 5.40

Oertel, Horst—General Pathology..... 4.50
 Reuss, August von—Diseases of the New Born 11.25
 McKenzie, Sir James—Heart Disease and Pregnancy 2.70
 Sluder Greenfield—Headaches of Nasal Origin. }
 Kerrison, P. D.—Diseases of the Ear. } 18.00
 Skillern, R. H.—Diseases of the Accessory Sinuses. }
 Dench, E. B.—Disease of the Ear..... 7.50
 Butler, G. R.—Diagnostics of Internal Medicine 10.00
 McCollum, E. V.—Newer Knowledge of Nutrition, 2nd ed..... 3.42
 Scheppegegrell, Wm. — Hayfever and Asthma 2.48
 George, A. W. & Leonard, D.—Pathological Gall Bladder..... 9.00
 Simpson, F. E.—Radium Therapy..... 6.30
 Gant, S. G.—Diseases of the Rectum... 12.60
 Rebinding Colorado State Med. Soc. Transactions 7.50
 Total \$149.70
 Volumes in Library Sept. 1, 1921 1122
 Volumes in Library Sept. 1, 1922 1182
 Added during year 60
 Purchased 23
 Gift, Colorado Medicine..... 37
 Appropriation \$150.00
 Expenditures 149.70

Balance \$.30

The Committee requests that the usual appropriation of \$150.00 be made for the purchase of books.

W. A. JAYNE.

EDWARD JACKSON,

Edward Jackson then read the report of the Committee on the Jubilee Volume, which is as follows:

REPORT OF THE COMMITTEE ON JUBILEE VOLUME.

Your Committee, appointed with instructions to publish a Jubilee Volume in celebration of the Semi-Centennial of the Society, consisting of a list of titles of the scientific and literary work of the members of the Society during the past fifty years, begs to report as follows:

After many unavoidable delays the volume was issued last week and is now being distributed according to the understanding of the wishes of the Society, and in recognition of the courtesies extended by the guarantors of the fund for publication. The committee being in doubt as to the possible demand contracted for the printing of 800 copies, 500 of which should be bound and remainder held for subsequent demands, if any. Distribution is being made as follows:

Complimentary in the name of this Society.

	Copies
To charter members	3
To medical libraries in the United States and Philippines	173
Medical libraries in Canada.....	10
Foreign medical libraries Europe..	54
Foreign medical libraries Asia.....	6
Foreign medical libraries Central America	1
Foreign medical libraries South America	7
Foreign medical libraries Africa..	3

Foreign medical libraries Australia	2
Foreign medical libraries Mexico..	2
Foreign medical libraries Cuba....	1

76

Total complimentary copies.....	262
Copies sent to subscribers to guarantee fund	55

Total distribution, except for sales.....	317
Balance on hand for sale.....	183

The volume has been issued so recently that the bills for publication cannot be given accurately, but may be closely approximated as follows:

Cost of Preparation.

Salary of Miss Bishop, secretary.....	\$584.03
Stationery supplies	11.75
Purchase of typewriter.....	70.00

Total paid out for preparation....	\$665.78
Credit, sale of typewriter.....	50.00

Net cost of publication.....	\$615.78
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Cost of Publication.

Printing (actual)	\$1,375.00
Wrapping, delivery, postage, etc. (estimated)...	85.00

Total cost of publication (approximated)...	\$1,460.00
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Total net cost (approximated).....	\$2,075.78
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The cost per volume is therefore, approximately, \$4.15 (for those already distributed), and with about 16 cents added for delivery or postage, would bring it up to about \$4.31, and, with the approval of this House, the committee proposes to offer it for sale at \$4.50 per volume, an increase of less than 20 cents per volume, delivered on sale.

The above cost will be met as follows:

Appropriation of this Society, last.....	year	\$ 750.00
Cash paid into the Society's treasury.....	by fifty-five guarantors.....	1,475.00

\$2,225.00

Deduct approximate cost.....	2,075.78
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Balance due guarantors.....	\$ 149.22
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The money collected from guarantors was with the express understanding that any surplus above expenses, and receipts from sales, would be refunded pro rata, and this the Committee proposes to do unless otherwise instructed by the individual guarantor, and with this understanding the Committee will draw checks upon the treasury.

The attention of the House is invited to the fact that the actual cost of the volumes sent out to the various medical and university libraries throughout the world at \$4.15 per volume, is \$1,075.51, or \$325.51 above the amount contributed by the Society, and this is now borne by the guarantors. It would appear entirely fair and proper that the Society should bear the expense of the volumes sent out in its name, and the committee respectfully suggests that the House make an additional appropriation to this fund of \$325.51, which shall be available for such disposition as the guarantors may determine individually according to the agreement under which the fund was raised.

There remain some three hundred printed copies printed, but unbound, which will be

available for binding and distribution at an agreed charge by the publishers should occasion demand.

The Committee has done all possible to have the book accurate and attractive, and although errors and omissions are bound to occur under such circumstances as were met in its publication, it is hoped that they are very few and that the total result will be satisfactory to the great majority of the members of the Society.

Respectfully submitted,

W. A. JAYNE, Chairman,

EDWARD JACKSON,

HUBERT WORK,

Committee on Publication.

Dr. Jackson then addressed the House on the subject matter of the report, explaining in detail the various features of the volume.

The report was referred to the Reference Committee on Reports of Committees.

It was then moved by Melville Black that the Secretary be authorized to prepare and retain a paper for those who wished to sign for copies of the Jubilee Volume, at \$4.50. The motion being regularly seconded and put to a vote, was carried.

It was then moved by C. E. Cooper, seconded by J. J. Pattee, as follows:

Motion to Levy Per Capita Assessment to Provide a Contingent Fund.*

That the House of Delegates levy an assessment of \$2.00 (two dollars), to be collected from each member of the Colorado State Medical Society annually, for a period of five years; this assessment to be collected in the same manner as the annual dues, and forwarded to the Treasurer of the Colorado State Medical Society.

The money thus received by the Treasurer shall be kept separate from other funds of the Society and be known as the Contingent Fund. The Treasurer, with the approval of a majority of the Councilors, shall invest this sum, and interest earned thereon in easily negotiable federal, state, county, or municipal securities, bearing a rate of interest current at the time of investment.

The expenditure of this fund shall be subject to the direction of the House of Delegates.

The purpose of this fund is to help resist efforts from whatever source arising or of whatever kind, directed against the welfare, rights, freedom, normal function, or life of the medical profession as a whole, not as purely individuals, in the State of Colorado.

It is further expressly stated that it shall not be used for the usual social, scientific, or routine work of the Society, nor for the payment of salaries, incident to the operation of the Society, nor for publication purposes, unless of interest and demand to the general public, and it may not be transferred to any other fund of the Society.

After being discussed by Dr. Cooper, the matter was, upon motion duly seconded, referred to the Committee on Miscellaneous Business.

Dr. Arnold Taussig then moved the adoption of the following resolution:

Resolution on Gratuitous Service Rendered by Division of Venereal Disease.†

Whereas, the proper function of the state and local boards of health is limited to sanitation

*See minutes of October 5 for disposition of this motion.

†The minutes of a later meeting show that this resolution was amended by striking out the first paragraph and adopted as amended.—Ed.

and to the prevention of communicable disease of an epidemic nature, and

Whereas, the Colorado State Board of Health, through its division of venereal disease, has been giving gratuitous laboratory service and medicines to patients both rich and poor; therefore, be it

Resolved, that this practice is contrary to the spirit and letter of Article VI, Sec. 1 of the Code of Ethics of the American Medical Association and constitutes an unnecessary encroachment of the state on the proper pursuit of the medical profession, and

Resolved, that the Colorado State Medical Society, through its House of Delegates, protests against the further use of the state laboratory for free diagnostic tests in venereal diseases to other than indigent patients, and

Resolved, that a copy of these resolutions be transmitted to the Colorado State Board of Health.

The motion being seconded by Dr. Melville Black, upon further motion, regularly seconded and carried, the matter was referred to the Committee on Miscellaneous Business.

G. P. Lingenfelter then introduced the following resolution and moved its adoption:

Resolution on Officers' Reserve Corps and National Preparedness.

It is respectfully recommended that the following resolutions in substance be presented for passage by the convention of the Colorado State Medical Society:

Whereas, this convention of the Colorado State Medical Society, assembled at Colorado Springs, Colo., this 2nd day of October, 1922, is composed of those whose thought and study have shown them the necessity of organization in worthy purposes, and

Whereas, it is firmly realized that a strong military policy is necessary for the protection of our country, and maybe even for its preservation in future emergency, and

Whereas, it is evident that a military policy to be effective must have organization, and

Whereas, the Congress of the United States did for the first time in the history of our country, give us in the amended national defense act of June 4, 1920, our first concrete military policy and the possibility of organized preparedness for our country for future emergencies, and

Whereas, the great unrest and lack of tranquillity in various countries of the world today make a future emergency involving our country far from an impossibility, and

Whereas, the source of supply of reserve officers for the organized reserves of the United States army must come from the qualified citizens of the United States, including trained medical men, whether or not they have had prior military service, and from the young men who qualify at civilian military training camps held in Colorado or elsewhere; therefore, be it

Resolved, that this convention of the Colorado State Medical Society do express and publish to the Congress of the United States, and, likewise, to the people of the state of Colorado, their conviction of the importance and timeliness of the amended national defense act, and of the great necessity of supporting the act by sufficient appropriations to make it effective, permitting full organization and training thereunder, and, be it further

Resolved, that appropriations for the support

of the army should include sufficient sums to cover the following needs:

An adequate amount to cover the pay and training of at least thirty-three and one-third percent of the enrolled officers' reserve corps each year, and of all the enlisted reserve corps, enrolled, for the coming year; an adequate number of officers and enlisted men in the regular army to furnish the personnel for organization and training of the National Guard and the organized reserves; also for the supply of sufficient material for use at training camps, and, be it further

Resolved, that the convention of the Colorado State Medical Society favor lending hearty support to all legislation in future proposed by the War Department in the interest of national preparedness, and, be it further

Resolved, that the convention express to its members, the medical men of Colorado, the conviction that each of them should lend his active support so far as that is possible, to building up the officers' reserve corps by identifying himself therewith and by using his influence in favor of sending young men of proper age and character to the civilian military training camps in Colorado and elsewhere, to the end that they may acquire the essential training to identify themselves with the organized reserves and help secure to their country the maximum of preparedness.

The resolution was referred to the Reference Committee on Miscellaneous Business.

G. B. Gilbert then introduced the following resolution and moved its adoption:

Resolution Favoring a Proposed Bill to Provide a State Tuberculosis Sanatorium.

Whereas, the number of cases of tuberculosis developing among the residents of Colorado is steadily increasing, and

Whereas, There is at present no suitable accommodation for treating these cases, and

Whereas, There is a movement on foot to introduce a bill before the Legislature to provide a state tuberculosis sanatorium for this purpose; therefore, be it

Resolved, that the Colorado State Medical Society go on record as favoring this bill.

The resolution was referred to the Reference Committee on Miscellaneous Business.

It was then moved by Dr. Melville Black that a committee of three be appointed, of which Dr. Edward Jackson be chairman, to draft appropriate resolutions upon the death of Alexander R. Craig, former secretary of the American Medical Association. It being regularly seconded and put to a vote, the motion was carried.

The Secretary then announced that Dr. J. W. Lockwood of Fort Morgan was a candidate for regent of the State University on the Democratic ticket, and asked whether the Society cared to consider an endorsement of his candidacy. On motion of Dr. Cooper, seconded by Dr. Jackson, the matter was referred to the Committee on Public Policy and Legislation.

The Secretary then read a letter from Mrs. H. L. D. Kirkham, corresponding secretary of the Women's Auxiliary of the American Medical Association, Houston, Texas, and on motion of Dr. Melville Black, regularly seconded, the subject of the letter was referred to the Committee on Miscellaneous Business.

A letter was then read from the secretary of the American Medical Association, of date August 23, 1922, dealing with the subject of a Gorgas memorial, which, on motion seconded

and carried, was referred to the Reference Committee on Miscellaneous Business.

A letter from the executive secretary of the American Medical Association, relative to government regulations with regard to bonded liquor and to the training of chiropractors by the veterans' bureau, was read by the Secretary, and on motion seconded and carried, was referred to the Committee on Public Policy.

There being no further business before the meeting, the House of Delegates then adjourned.

Second Meeting of the House of Delegates, Oct. 3, 1922

The House of Delegates met at 9 o'clock a. m., on the date above noted, pursuant to adjournment, and was called to order by the President.

The Secretary called the roll, and the President announced a quorum present.

The reading of the minutes of the previous meeting was dispensed with.

Edward Jackson read the following resolution and moved its adoption:

Resolution on Antivivisection Bill.

Knowing that the efficiency and progress of medicine and surgery, with their benefits to men and all domestic animals, depend on animal experiments, and that such experiments are made without cruelty, and usually without pain or discomfort to the animals used, the Colorado State Medical Society unanimously asks the voters of Colorado to oppose by vote and influence initiated bill No. 5, the so-called antivivisection bill, to be submitted to the voters at the coming election.

The resolution was referred to the Committee on Public Policy.

Dr. Jackson then introduced the following resolution and moved its adoption:

Resolution on Defining Industrial Blindness, Etc.

Whereas, justice in giving relief for blindness, the awarding damages and insurance for impairment of sight and admission of the blind to special advantages in training, require expert determination of the reality and degree of disability present, and

Whereas, the Section on Ophthalmology of the American Medical Association has studied the subject through a committee of members particularly fitted to pass judgment on it and has adopted the report of that committee recognizing as industrial blindness the reduction of vision to less than 20/200, and a scale of disabilities caused by partial blindness,

Resolved, that the Colorado State Medical Society urges upon the state legislature, the courts, the executive officers, the industrial commission, the commission on pensions for the blind, and on those controlling admission to institutions for the blind, that they be guided by the best expert advice obtainable with regard to the disability of claimants and recognize the standard of less than 20/200 vision as the limit of practical or industrial blindness, and conform awards for damages and insurance, as nearly as practicable, to the schedules set forth in the said report.

On motion duly seconded, put to a vote and carried, the matter was referred to the Committee on Public Policy and Legislation.

The following resolution was thereupon introduced by Edward Jackson:

Resolution Regarding Section Delegates in A. M. A.

Whereas, the scientific usefulness and leadership of the American Medical Association depend largely on the scientific work of the sections at the annual meeting, and

Whereas, the past development and future progress of the association have been due and must be due largely to the interest in and activity of the sections,

Resolved, that the Colorado State Medical Society is opposed to depriving the sections of the representation they now have in the House of Delegates of the American Medical Association, amounting as it does to only one-tenth of the members of the House, and that the delegates from Colorado are instructed to express and carry out the views of this Society upon the matter.

The resolution was referred to the Committee on Miscellaneous Business.

The report of the Committee on Medical Education was then read by Dr. Meader, and on motion of Dr. Jackson, regularly seconded, the report was accepted and ordered to be read at the general meeting of the Society on the evening of October 3.

The report is as follows:

REPORT OF COMMITTEE ON EDUCATION.

Your Committee on Medical Education begs to report as follows:

In the United States at large the past year has been marked by no significant changes other than the continuance of the marked interest in improved teaching facilities and the steadily increasing enrollment in high grade schools. The number of applicants for enrollment has so greatly increased that practically every first class school has been forced by the necessary limitation of the size of its classes, to turn away many aspirants and the two year schools are finding serious difficulty in placing their students for the last two years of their course. The requirements of a fifth year before graduation, spent either as a hospital interne or in occasional instances as assistant in one of the preclinical sciences, has been more widely adopted by medical schools and state licensing boards.

In Colorado the various major difficulties delaying the beginning of actual work on the university's program for the School of Medicine seem to have been successfully surmounted. Work on the plans has progressed to such a point that it has been possible to let the contract for the foundations and actual excavating was begun during the week preceding this meeting. It is expected that work on the buildings themselves can be commenced about the first of the year, and that they will be ready for occupancy by the opening of the school year of 1924. The enrollment of the school has increased materially this year, though final figures are not available at the time of preparation of this report. With its present facilities the school can properly care for no more than thirty students in a class, if any regard be had for modern standards of sound instruction, and classes have accordingly been limited to that number. This year, at the close of registration, for the first two years, on August 1st, sixty applications for the first year were on file and subsequent applications which could not be considered probably brought the total close to one hundred. After much consideration it was decided to 'squeeze in' forty freshmen, non-resi-

dents of the state were summarily excluded, and of the remaining residents forty were admitted on the basis of the excellence of their pre-medical college work. Naturally great pressure has been brought to bear to force in some of those thus rejected.

This experience has brought the university face to face with a most difficult problem which was foreseen and discussed in an earlier report of your committee. In the limitation of classes, many considerations are involved. Manifestly under modern methods of medical instruction, demanding individual teaching both in laboratory and clinic, some limitation of classes must be adopted, else the demands of the budget and for clinical material will be greater than the state can afford. After very careful discussion, based upon previous enrollments averaging from twenty to twenty-five per class, fifty per class was fixed upon as the maximum likely to apply, and for which the state should be asked to supply funds (the average cost per year per student in grade A schools being usually set at about \$750). Now the school is faced by one hundred students demanding entrance before the new buildings are started. Some method of limitation must then be adopted. Shall we raise tuition to a point which will automatically keep many out because they cannot afford to come, and at the same time thus provide for the budget? Surely none of us, with fresh recollections of our brilliant colleagues who have worked their way to the top with no financial backing, wishes to turn medicine into a profession for rich men's sons alone. Shall we say arbitrarily that we will accept no student not a resident of this state? To do so would deprive our own students of that most important contact with other points of view, which could then only be gained by their migration to other schools and would tend rapidly toward a dangerous provincialism. Moreover, who of us whom tuberculosis sent here, or who recall the many useful and brilliant members of our profession acquired by Colorado through this same agency, or who of us who list among our patients and friends influential and substantial citizens whose brains and money have contributed to Colorado's up-building, though brought here against their will, who of these would feel it fair to them or in the best interests of the state, to say to the non-resident medical student, "Your tuberculosis may prevent your pursuit of a medical education elsewhere, but we will not take you." Shall we say that of those applying for entrance, we will take the thirty or the fifty of greatest promise as demonstrated by their previous work? Manifestly, therein lies the way to recruit the best brains and the best character for the medical profession. It is already being done unhampered by the endowed schools, and unless state institutions be permitted the same freedom of choice the day is not far distant when the endowed schools will skim the cream of our prospective physicians, while the State University schools, hampered in their selection, must be content with a high proportion of second rate material. Whether or not state universities, here and elsewhere, can resist this tendency and successfully prevent the deterioration of the average quality of their graduates through the many and devious operations of influence and "pull" depends very largely on the understanding, cooperation and backing of the medical profession.

This problem will become more acute in the

next few years and the university earnestly desires the help and suggestions of this Society in its solution, indeed must have its aid if its work in medicine is to attain fullest success.

Your Committee hopes that this report may receive serious consideration and discussion by this Society.

Respectfully submitted,

ROBERT LEVY,
CARBON GILLASPIE,
CHAS. N. MEADER,
Chairman.

The Reference Committee on Reports of Committees then submitted the following report:

REPORT OF REFERENCE COMMITTEE ON REPORTS OF COMMITTEES.

The Reference Committee on Reports of Committees reports on the report of the Publication Committee, that the present success of Colorado Medicine financially is due to the increase in advertising and that this is largely due to the Cooperative Medical Advertising Bureau (of the American Medical Association). We desire to acknowledge our appreciation of the activity of the bureau and of the assistance that they have been to our journal. We desire to endorse the recommendation of the Publication Committee that the editor, Dr. Frank B. Stephenson, be especially commended for the able manner in which he has conducted the journal during the past year.

We endorse the recommendation that the size of the type be increased.

We would especially commend the recommendation that there be more active cooperation on the part of the secretaries of local societies in the use of Colorado Medicine for news items and notes of general interest.

We recommend the adoption of the report of the Committee on Credentials.

We recommend the adoption of the report of the Committee on Medical Literature and endorse its recommendation of an appropriation of \$150 for the purchase of books.

We recommend that the closest possible cooperation between the physician and the druggist be continued and that the shortcomings of each be the subject of graceful condolence.

On the Jubilee Volume we would recommend the adoption of the report of the committee and endorse its recommendation that an appropriation of \$325.51 be made to cover the cost of the complimentary copies sent out by the Society.

MELVILLE BLACK, Chairman,
I. B. LAHMER,
W. W. CROOK.

On motion duly seconded and carried, the report was accepted and the recommendations therein adopted.

Hospital Committee Created.

It was then moved by Melville Black that a permanent committee be created, to be known as the Hospital Committee, and that the appointment of this committee be left with the chair, that one member retire each year, and another be appointed in his place.

Dr. Moleen then moved an amendment to the motion, that the committee consist of three members.

The amendment being accepted, the motion, as amended, being regularly seconded and put to a vote, was carried.

Dr. Carmody then made an additional verbal

report on behalf of the Committee on Scientific Work.

There being no further business, the House of Delegates then adjourned to meet at 2 o'clock p. m., October 4th.

Third Meeting of the House of Delegates, Oct. 4, 1922

The House of Delegates met at 2 o'clock p. m., pursuant to adjournment, and was called to order by the President.

The Secretary called the roll, and the President announced a quorum present.

The minutes of the previous meeting were read and approved.

L. J. Weldon was seated as alternate from Denver county in place of O. M. Shere, and H. C. Graves as alternate from Fremont county, in place of F. G. Dutton.

As the first order of business, Dr. Strickler presented the report of the Committee on Public Policy on referred matters.

The report is as follows:

REPORT OF COMMITTEE ON PUBLIC POLICY ON REFERRED MATTERS.

The Committee has deemed it wise to avoid official opposition to the antivivisection movement further than to recommend the adoption of the resolution offered by Dr. Jackson requesting the voter's influence at the coming election, against the initiated bill.

Contribution to Animal Experimentation Fund.

It is further recommended that the fund now in the hands of this Committee (approximately \$195) be made subject to draft by warrant of the President of the Society, with the approval of the Chairman of this Committee, and to be used in the interest of the antivivisection opposition.

The Committee recommends the adoption by the Society of the resolution offered by Dr. Jackson regarding the standards for awards in cases of visual impairment.

The Committee believes that publicity should be given the candidacy of Dr. F. W. Lockwood, for the position of regent of the State University, but that official action of this body in political recommendations is to be avoided.

The Committee recommends the endorsement of the resolution on the Volstead act as presented at the St. Louis session of the American Medical Association by Dr. J. D. Brook, by special resolution, presented herewith, and further recommends the safeguarding of the profession from the result of such action, through the misuse of the liberty and license involved, by unscrupulous physicians to the detriment of the serious-minded practitioners of medicine.

The Committee, by special resolution herewith presented, expresses its disapproval of the training, by the U. S. government, of disabled veterans as chiropractors.

DAVID A. STRICKLER, Chairman.

The resolutions introduced with the above report follow:

Resolution on Volstead Act With Reference to the Practice of Medicine.

Whereas, a referendum conducted by the American Medical Association indicated that fifty-one percent of the 54,000 physicians represented considered whiskey necessary in the practice of medicine, and

Whereas, a resolution was presented before the House of Delegates of the American Medi-

cal Association at its last session and appears in the minutes of this body; therefore, be it

Resolved, that the Colorado State Medical Society, by its House of Delegates in convention assembled endorses this resolution; that it joins in the appeal to the Secretary of the Treasury and to the Congress of the United States for relief from the present unsatisfactory conditions, and in the recommendation that provision be made for the supply of bonded whiskey, for medicinal use only, at a fixed retail price to be established by the government.

Resolution on the Vocational Training of Disabled Soldiers.

Whereas, the St. Louis Medical Society, on May 16, 1922, by memorial and resolutions vigorously protested against the approval by the U. S. government of the school of chiropractic as a means of vocational training for disabled ex-service men, and

Whereas, a resolution approving the sentiment of the memorial and resolutions of the St. Louis Medical Society was recommended for adoption by the House of Delegates of the American Medical Association, and

Whereas, There are approximately thirty-nine para-medical cults clamoring for recognition by every means except that of fundamental scientific study and training upon which fitness can only be placed; therefore, be it

Resolved, that the House of Delegates of the Colorado State Medical Society, in convention assembled, express its approval and endorsement of the resolution before the House of Delegates of the American Medical Association in every detail, and also that the same be applied to all medical cults whose members shall not have received such fundamental and adequate training as is defined in the classification of medical schools of the American Medical Association, known as Class A, or accepted medical schools.

The House of Delegates then took up the several matters as reported by the Committee on Public Policy and, on motion, duly seconded and unanimously carried, adopted the resolution relative to the antivivisection bill.

On motion, seconded and carried, the recommendation of the committee concerning the resolution of the Volstead act was adopted.

On motion, seconded and carried, the House of Delegates adopted the recommendation of the Committee in regard to the resolution on vocational training of disabled soldiers.

On motion seconded and carried, the recommendation of the Committee with reference to the resolution offered by Edward Jackson, as to industrial blindness, etc., was adopted.

On Motion of Dr. Levy, regularly seconded and carried, the candidacy of Dr. F. W. Lockwood, for Regent of the State University, was endorsed by the Society.

On motion, regularly seconded and carried, the report of the Committee on Public Policy was adopted as a whole.

Dr. Chipman then presented the report of the Reference Committee on Miscellaneous Business, and moved its adoption.

The report is as follows:

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS.

We, your Reference Committee on Miscellaneous Business, wish to report as follows:

We wish thoroughly to endorse Dr. Lingenfelter's resolution concerning the Officers' Reserve Corps.

We recognize the possible abuse of free medi-

cal service and recognize that Dr. Taussig's motion regarding the state laboratory might be a step to correct that abuse, but as we have no evidence at hand in support of the second whereas, we prefer to return this resolution without recommendation.

The motion by Dr. C. E. Cooper to create a contingent fund by special assessment, is likewise referred back to the House without recommendation.

It is recommended that the Committee on Public Policy undertake the duties concerned with health problems in education, rather than to appoint a special committee.

The Gorgas memorial resolution is most heartily endorsed by your Committee.

The resolution of G. Burton Gilbert, concerning a tuberculosis sanatorium is heartily endorsed by your committee.

The resolution concerning the formation of a woman's auxiliary of the A. M. A. is referred back to the House without recommendation.

The resolution in favor of retaining section representation in the House of Delegates of the American Medical Association is endorsed.

Respectfully submitted.

JOHN R. ESPEY,
J. C. CHIPMAN.

Col. K. C. Masteller then addressed the House on the subject of the Medical Reserve Corps.

The motion to adopt the recommendations of the committee, being regularly seconded and put to a vote, was carried.

The resolution introduced by Dr. Taussig, with reference to state and local boards of health, was discussed and, on motion of Dr. Love, was amended by striking out the first paragraph thereof, i. e., "The proper function of the state and local boards of health is limited to sanitation and to the prevention of communicable disease of an epidemic nature." Upon being put to a vote, the amendment as offered by Dr. Love was adopted.

The original resolution, as amended, was, upon further motion, regularly seconded, adopted unanimously.

C. E. Cooper's motion regarding a special fund, being returned by the Committee on Miscellaneous Business without recommendation, the subject was discussed by Drs. Taussig, Miel, Cooper, Blotz, Levy, Chipman, Jackson, Stoddard and Strickler, and on motion, regularly seconded and carried, the motion was laid on the table until the meeting of October 5th, an interim ruling of the President being asked for on the constitutionality of the proposed procedure.

On motion of Dr. Chipman, the recommendation of the Committee relative to the Gorgas Memorial, was adopted.

On motion of Dr. Chipman, the recommendation of the Committee relative to the resolution of G. Burton Gilbert, concerning a tuberculosis sanatorium, was adopted.

On motion, regularly seconded and carried, the recommendation of the Committee regarding the Section Delegates to the American Medical Association convention, was adopted.

The recommendation by the Committee that the duties of a committee on health problems in education, whose creation was suggested in a letter from Dr. John M. Dobson, be taken over by the Committee on Public Policy, was, on motion duly seconded, adopted.

The Committee having referred back to the House without recommendation the question

concerning the formation of a Woman's Auxiliary of the State Society, on motion of Dr. Stoddard, duly seconded, formation of a Woman's Auxiliary of the Colorado State Medical Society was endorsed.

On motion of Dr. Jackson, regularly seconded, the report of the Committee, in its entirety, was adopted.

The report of the Appropriations Committee was then submitted by Dr. Strickler, and on motion, seconded and carried, was adopted.

The report is as follows:

REPORT OF COMMITTEE ON APPROPRIATIONS.

Your Committee on Appropriations recommend the following appropriations for the ensuing twelve-month:

Incidentals and printing.....	\$150.00
Programs and postage.....	125.00
Committee on Public Policy.....	200.00
State Library	150.00
Reporting annual meeting.....	225.00
Editor's salary	300.00
Editor's clerk	120.00
Secretary's salary	200.00
Secretary's clerk	240.00
Jubilee Volume	325.51
Colorado Medicine, per member.....	2.00

DAVID A. STRICKLER, Chairman,
G. W. MIEL.

The following resolution was then introduced by Tracy Love, who moved its adoption:

Resolution Giving Health Officers' Organization Place on Program of Annual Meeting.

Whereas, the health officers of Colorado number something over 200 and are without any organization, and

Whereas, the work of the health officer is frequently distasteful in character and without fair compensation, and

Whereas, it would seem desirable to organize all health officers of this state, to the end that greater efficiency and enthusiasm might be acquired, and

Whereas, the Colorado State Board of Health is forming an organization of health officers with the object of engendering greater cooperation between these men, the civil authorities and the medical profession at large, thereby enhancing the value of and increasing the amount of public health work in this state; be it therefore

Resolved, that the Colorado State Medical Society endorse such organization of health officers, supporting and encouraging the work of these men, and be it further

Resolved, that the Committee on Scientific Work be requested to so arrange the program of the annual meeting of the Society to include a portion of the annual program of the health officers' organization.

Respectfully submitted,

T. R. LOVE,

Secretary State Board of Health.

On being put to a vote, the resolution was adopted without reference.

President Epler then stated that he would present to the meeting of the House on October 5th the question of advertising by physicians, and gave notice to that effect.

On motion of Dr. Jackson, regularly seconded and carried, the matter was referred to the Committee on Miscellaneous Business.

The Nominating Committee then submitted the following report.

REPORT OF NOMINATING COMMITTEE.

Your Nominating Committee begs to report the following nominations:

For President, Melville Black, Denver.

For First Vice President, Thomas A. Stoddard, Pueblo.

For Second Vice President, George A. Boyd, Colorado Springs.

For Third Vice President, E. P. Hummel, Sterling.

For Fourth Vice President, W. W. Williams, Denver.

For Delegate to the American Medical Association, C. N. Meader, Denver.

For Alternate Delegate to the American Medical Association, Oliver Lyons, Denver.

For Councilor District No. 5, A. J. Nossaman, Pagosa Springs.

For Member of Committee on Publication, George A. Moleen, Denver.

Place of meeting for 1923 (exact date to be selected by the President and Secretary), Glenwood Springs.

Your Committee further begs to report that it finds a strong feeling throughout the membership of the Society that after 1923 the Society meet as often as is feasible at Colorado Springs.

JOHN R. ESPEY, Chairman.

JAMES J. PATTEE,

C. R. ARNOLD,

G. P. LINGENFELTER.

On motion of Dr. Chipman, regularly seconded and carried, the report was accepted as such.

There being no further business, the meeting adjourned to meet at 8 o'clock a. m., October 5, 1922.

Fourth Meeting of the House of Delegates, October 5, 1922

The House of Delegates met and was called to order at 8 a. m., by the President.

The Secretary called the roll and the President announced a quorum present.

The minutes of the previous meeting were read, and after minor corrections, approved.

Election of Officers.

The election of officers being the first order of business, the report of the Nominating Committee was re-read by the Secretary, and nominations from the floor were called for.

There being no further nominations, it was moved and seconded that the Secretary cast the ballot in favor of the nominees recommended by the Committee. Upon being put to a vote, the motion was carried. The Secretary then announced that the ballot had been cast, and the President declared the nominees unanimously elected, viz:

President, Melville Black, Denver.

First Vice President, Thomas A. Stoddard, Pueblo.

Second Vice President, George A. Boyd, Colorado Springs.

Third Vice President, E. P. Hummel, Sterling.

Fourth Vice President, W. W. Williams, Denver.

Councilor, Fifth District, A. J. Nossaman, Pagosa Springs.

Delegate to American Medical Association, C. N. Meader, Denver.

Alternate, Oliver Lyons, Denver.

The recommendation of the Nominating Committee that Glenwood Springs be chosen as the

place for the next annual meeting was declared adopted.

H. A. Smith then stated he had had some correspondence with the American Medical Association in regard to the Association having a representative at the state meeting and giving such representative a place on the program, and it was suggested by Dr. Smith that the House of Delegates notify the American Medical Association to send a representative to the next meeting of the Colorado State Medical Society. It was then announced by the President that the subject was one for the consideration of the Scientific Committee. No further action was taken.

Edward Jackson then read a resolution framed by his committee, concerning the death of Dr. Alexander R. Craig, and it was moved by Melville Black that the resolution be adopted and that a copy be sent to the American Medical Association. The motion being regularly seconded and put to a vote, was carried unanimously.

The resolution is as follows:

Resolution on the Death of Dr. Alexander Righter Craig.

The Colorado State Medical Society expresses its deep regret for the untimely death of Dr. Alexander Righter Craig, for the past eleven years Secretary of the American Medical Association. His manner and his large experience and skill in harmonizing conflicting views and interests made him always agreeable to work with, and a very important influence for the welfare of the medical profession of this country. His visit to the last annual meeting of this Society was a distinct benefit to us, and will be long remembered as a pleasant incident in our history.

G. P. Lingenfelter, Chairman of the Auditing Committee, then submitted a report on behalf of the Committee, which, on motion, duly seconded and put to a vote, was approved.

The report is as follows:

REPORT OF AUDITING COMMITTEE.

We, your Committee, have carefully audited the report of the Treasurer of the Colorado State Medical Society for 1922 and find it correct.

Respectfully submitted,

G. P. LINGENFELTER,

GEORGE A. BOYD.

J. C. Chipman, Chairman of the Committee on Miscellaneous Business, then submitted a resolution conforming with similar action taken at the St. Louis meeting of the American Medical Association, concerning the matter brought up by President Epler in the meeting of October 4, relative to group ethics, and moved its adoption. The resolution is as follows:

Resolution Defining Application of Code of Ethics to Groups, Hospital Staffs and Clinics.

The principles of medical ethics of the American Medical Association, which it is the duty of the Colorado State Medical Society to uphold, prohibit open boasting or advertising of professional skill; and,

Whereas, There is a growing tendency for physicians to group themselves for the practice of medicine and surgery; and,

Whereas, Such grouping confers no right to seek publicity in the public press in any way that would be unethical for the individual, or for a member of the group to secure for his group such notice as it would be improper for him to seek for himself as an individual;

Resolved, That in event of improper publicity advertising any group, hospital staff or clinic, the individual members thereof shall each be held culpable therefor, and summary action shall be required of constituent societies to punish such breaches of medical ethics.

The matter was then discussed by Tracy Love, Edward Jackson and B. B. Blotz.

It was then moved by Dr. Blotz that the resolution be amended by adding that the secretary be instructed to send copies of the resolution to the secretaries of the constituent societies, with instructions that the secretaries of these societies distribute them to every physician within the scope of their respective societies.

It was then suggested by President Epler that Colorado Medicine print sufficient copies of the resolution that copies might be sent to the entire profession throughout the constituent societies.

The amendment being accepted, this amended resolution was unanimously adopted.

Dr. N. W. Wardlaw of Childress, Texas, fraternal delegate, was then presented by the President and addressed the meeting, viz.:

"Gentlemen, Medical Men, Custodians of Public Health of the Grand and Picturesque State of Colorado:

"I come as a long-horn, native-grass product from the Lone Star ex-republic, now regularly affiliated State of Texas, honored with credentials commissioning me Fraternal Delegate from the organized medical men of my state, to bear fraternal greetings to you who constitute this honorable organization. It is indeed a delight to be so honored and a greater delight to meet you and look into the faces of the men who love duty and their fellow-men more than they love money and meteoric illumination by self-ignited footlights on the stage of human activities. Again I greet you as brothers, as men, as scientists, who, linked together with other state organizations of like kind, form our national organization. And in this great fraternal body we find the greatest friend that humanity ever had save the spirit that emanates from the Eternal Throne. Without money, without price, yes, oftentimes not only without appreciation, but at a cost of real censure, we are continually trying to save the layman against himself, save him from quackery, save him from the backbone fixers, save him from improper eating, save him from the curse of venereal diseases, save him from all manner of infectious diseases, save him, I say! And then as a reward for our efforts in his behalf have a herd of thimble-headed editors and vivisectionists go bleating over the country, 'Beware of the medical trust!'"

"On with the work, gentlemen of the Colorado State Medical Society, bearing in mind ever that your brethren of big old Texas are in the trenches with you, fighting for higher medical education, more thorough organization and so far as within us lies salvation of the masses from the curse of blighting ignorance of the rules governing health, happiness and longevity.

"I thank you."

As a special order of business, the House then took up for consideration the tabled motion introduced by Dr. Cooper at the meeting of October 3d, wherein it was provided that the House of Delegates levy an assessment of two dollars to be collected from each member of the Colorado State Medical Society for a period of five years, to be known as the "Contingent fund."

The President's ruling on the resolution, previously asked for, was as follows:

1. It seems to be business and for a special service that is not distinctly covered by our law.

2. It is doubtful if under the present constitution this House of Delegates has authority to define a policy of this kind which extends five years beyond its existence.

3. It is believed that the constitution must be amended to accomplish this, which will cause it to be presented to the constituent societies. Further, it is ruled that in that this has been introduced this year, it may be passed as an amendment to the constitution next year, provided the proper procedure will have been complied with during the interim.

It was moved by Edward Jackson that the matter be referred to the Councilors of the State Society to confer with officers of the constituent societies and to frame such amendments to the constitution, if needed, as will cover this matter between now and the next meeting of the Society.

The appointment of a special Military Committee was ordered whose duty it should be to carry out the intent of the resolution with regard to Reserve Officers Corps and National Preparedness.

Resolution Commending the Public Press.

The following was unanimously adopted: Resolved, That the Colorado State Medical Society highly appreciates the attention given this meeting by the newspapers of Colorado Springs, and that it especially appreciates and is grateful for the publicity given this society's stand on the anti-vivisection bill by the public press of the state at large, and especially by those papers which have openly defended animal experimentation as used for the furtherance of medical science.

Resolution Appreciating Entertainment of El Paso County Medical Society.

Resolutions were then adopted extending the thanks of the society to the El Paso County Medical Society and to the local committee on arrangements for the excellent preparations which contributed to convenience at the scientific sessions and to the entertainment of all guests.

Resolution Thanking Retiring Officers.

A resolution thanking the retiring officers for the zealous conduct of the society's affairs under their administration was then unanimously adopted.

The House of Delegates then adjourned sine die.

DIGEST OF THE MINUTES.

Forty-one delegates out of a possible fifty-three were registered and seated, and every constituent society was represented.

Present active membership 1,041, an increase of 57 since previous annual meeting.

Treasurer's balance, \$5,262.81, including a balance in jubilee volume fund of \$909.22, difference \$4,353.59, representing a gain of \$767.08 since last previous annual meeting.

Colorado Medicine saved \$544.77 out of its appropriation.

Twenty-three new books purchased by library, thirty-seven new books received free through Colorado Medicine.

Jubilee volume reported published and distributed and financial report given.

A Hospital Committee of three created.

Committee on Public Policy ordered to act on health problems in education.

Unused balance of Public Policy Committee's appropriation (\$194.55) directed to be used in opposing antivivisection bill.

The following resolutions were adopted:

A resolution protesting against the further use of the State Laboratory for free diagnostic tests in venereal disease cases for non-indigent patients, copy to be sent to State Board of Health.

A resolution endorsing the amended National Defense Act of June 4, 1920, and any other legislation looking to national preparedness, and urging the necessary appropriations and procedures by Congress for building up the Reserve Officers' Corps. Military Committee afterwards created to carry out intent of the resolution.

A resolution favoring a proposed bill to provide a State Tuberculosis Sanatorium.

A resolution asking the voters of Colorado to oppose initiated Bill No. 5, the so-called antivivisection bill.

A resolution defining industrial blindness and urging the State Legislature, Courts, Executive Officers, Industrial Commission and the Commission on Pensions for the Blind to be guided by expert advice with regard to disability of claimants.

A resolution in opposition to depriving sections of the American Medical Association of representation in the House of Delegates.

A resolution recommending that provision be made for bonded whisky for medicinal use only at a fixed retail price to be established by the Government.

A resolution opposing the training of disabled soldiers in Chiropractic Schools by the Veterans' Bureau.

A resolution providing place on the annual program for the Health Officers' Organization of Colorado.

A resolution of regret for the untimely death of Dr. Alexander Righter Craig.

A resolution defining the application of the code of ethics to groups, hospital staffs and clinics; copies ordered distributed to county society secretaries, to be handed to all physicians.

A resolution endorsing the action of the American Medical Association in its resolution favoring the proposed Gorgas Memorial.

A proposition to raise a contingent fund by making an assessment of \$2 per member per year for five years was referred to the Board of Councilors to devise a plan in conference with officers of local societies by which such a fund might be raised; with request for a report at the next annual meeting.

Dr. F. W. Lockwood endorsed in his candidacy for Regent of the State University.

The formation of a Woman's Auxiliary of the Colorado State Medical Society endorsed.

Next meeting place Glenwood Springs.

News Notes

Dr. A. J. Markley of Denver is expected to leave about November 15 for a three weeks' trip to California.

Eleven Colorado hospitals have been approved in the fourth annual survey made by the American College of Surgeons. They are: Children's, Mercy, St. Joseph's, St. Anthony's and St. Luke's in Denver; the Denver & Rio Grande Western and the Red Cross in Salida; the Glockner sanitarium and

St. Francis in Colorado Springs; and the Minnequa in Pueblo.

Dr. R. W. Corwin of Pueblo left October 19 for a month's trip in the East. He will take part in the program of the New York and New England Association of Railroad Surgeons at New York City and also attend the convention of the American College of Surgeons.

According to the Boulder Herald, Dr. John R. Barber, city health officer of Boulder, is expecting to resign his office and move to Portland, Ore., where he formerly lived. Dr. J. H. Bush of Sterling, secretary of the Northeast Colorado Medical Society, has been selected to succeed Dr. Barber and has already removed to Boulder.

Dr. R. A. Ashbaugh, formerly of Orchard, has removed to Aguilar, where he will practice in partnership with Dr. G. H. Maghee.

Dr. Harry A. Smith of Delta left for the East October 17, to attend the convention of the American College of Surgeons of which he has recently been elected a member.

Dr. George B. Packard, Jr., of Denver, has just returned after a four weeks' trip, during which he spent some time at the Massachusetts General Hospital in Boston and, on his way back, visited the Mayo Clinic.

Dr. W. C. Finnoff of Denver, who is now in Vienna, in a letter to Dr. Edward Jackson, dated October 15, after giving a very concise account of the facilities there for postgraduate work in ophthalmology, continues: "Austria is in a terrible condition, and I can see no way for improvement under the present state of things. The rate of exchange is 74,000 kr. for a dollar, compared to five in 1914. The professional classes have been hit hard by this condition, but the laborer has benefited greatly. Our American dollars have meant much to the instructors here. The price of food has gone up steadily to meet the fluctuations in the exchange, and at present the cost of living is about at the same ratio as it was before the war, compared with America. We can buy books to advantage, but instruments, etc., will be about as high as they are in the United States after we pay duty."

Dr. R. T. Frank of Denver has removed his offices from room 510 to rooms 522 and 523 Majestic Building.

Dr. E. Gard Edwards, formerly of La Junta, who recently located in Denver, has removed his offices to suite 11, Clayton Building.

It is an unfavorable commentary on the value of our initiative and referendum law that a fanatic or scoundrel can force the expense and trouble of an election upon the people by securing over 24,000 signatures to a petition when only 16,000 people vote for the measure at election time. There were evidently not enough citizens wanting "antivivisection" to authorize a petition, but the signatures went down just the same.

Dr. F. S. Spearman, writing to the editor from Rice, Ariz., says in part: "Your letter just received, having been forwarded to me from Idaho Springs. Probably you will be surprised to hear from me away down here, but I had a chance recently to take charge of a small hospital, connected with the Indian Service at this point, so I took it. So far I like the work first rate. There is a school for Indian children, with accommodations for about 200, and a small hospital of twelve beds, with nurse to help me. There is a certain amount of outside work, but the greater portion of it is right here. We are about twenty miles from Globe and Miami, two good copper mining towns, so that one can run up to these places occasionally when he wants a change.

"There is a good deal of tuberculosis among the Indians, due in large degree to their unhygienic ways of living, lack of proper nourishment, and so forth. This morning I returned from Phoenix, where I had taken a case to the T. B. Sanatorium maintained there by the Interior Department. They have about a hundred patients in the hospital at the present time. In addition to tubercular trouble trachoma probably comes next, lots of children as well as adults being afflicted."

Dr. F. Milton Friend, of Lamar, died on October 23, 1922, at the age of 77 years. Dr. Friend was a graduate of the Ohio Medical University of Columbus, 1894, and was licensed in Colorado the same year. He became a charter member of the Prowers County Medical Society in 1907, and has been active in that society as well as the Colorado State Medical Society ever since. He was secretary at Lamar at the time of his death and had just been re-elected for the ensuing year. The cause of death was intestinal obstruction.

Dr. Charles D. McKenzie, of Denver, died on October 23, 1922, at the age of 47 years. Dr. McKenzie was born in Silver City, Idaho, but practically all his life was spent in Colorado. He first graduated in pharmacy and later, 1912, took his degree in medicine from the University of Colorado, following which he served an internship in St. Joseph's Hospital, Denver. For the last seven years he had been associated with Dr. Leonard Freeman as assistant. Dr. McKenzie served as a captain in the World War and at the time of his death was a member of his county, state and national medical societies and was on the staff of the County Hospital, St. Joseph's Hospital and the National Jewish Hospital for Consumptives at Denver.

In the death of Dr. McKenzie the medical fraternity of Denver feels that it has lost one of the most competent and promising younger surgeons in its ranks. The fortitude and the absence of complaining with which he bore his undiagnosed malady, brain tumor, appeared all the more remarkable to those in close contact with him when at the very last the nature of his ailment made itself apparent, and they could realize the extent of his past suffering. Dr. McKenzie's zeal in attention to the poor in the County Hospital and in his private practice was even greater than he exercised with his more remunerative patients, and a host of other mourners is thus added to an already large number.

Dr. Oscar Maurice Shere, of Denver, died October 12, 1922, following an operation for kidney stone. Dr. Shere was born in Rossieni, Government of Grodn, Russia, in 1878, where he received his early education. He took up the study of pharmacy in Moscow and shortly thereafter emigrated to the United States, locating in Denver in 1894.

By dint of hard labor and serious struggles, earning his living by day and attending night school in the evening, he mastered the English language, then worked his own way through the Gross Medical College, graduating from that institution in 1902, and receiving his state license the same year. After two years internship in the D. & R. G. R. R. Hospital in Salida, he started practice in Denver and was soon elected a member of the Denver constituent society.

Throughout his medical career he showed a deep sense of responsibility to his profession and his fellow men. His social conscience was developed to an unusual degree. A faithful attendance at the meetings of both the county and state medical societies, and hospital staff meetings, his papers and discussions contributed greatly to the promotion of scientific medicine in Colorado.

His contributions to surgery of the chest, based on painstaking experiments on dogs, illustrate his originality as a thinker, and his wide knowledge of surgical and medical literature stamps him as a dilligent student.

From the inception of his medical career he identified himself with the medical school, where he

became chief of the surgical clinic and gained the esteem and affection of his classes by his preeminent qualities as a teacher.

He was actively identified with philanthropic endeavors, serving for many years as a trustee of the Jewish Consumptives' Relief Society and filling the arduous post of chairman of its Medical Advisory Board. He was an active member of the Committee on Public Policy of our Society, took a lively interest in our library and helped to organize the movement to combat antivivisection.

Dr. Shere's patriotism and love for his adopted country were shown by his activity and great efficiency as secretary of the Colorado State Committee of Medical Defense during the period of the war.

As secretary of the Colorado Chapter of the American College of Surgeons, Dr. Shere helped materially in the standardization of our hospitals.

His devotion to his patients, his gentle and humane attitude toward the sick and the poor, his eagerness to help his colleagues with his counsels made him beloved and respected by the laity and the profession.

Prof. Dr. Robert Bárány, occupying the chair of otolaryngology in the University of Upsala, Sweden, recipient of the Nobel prize for his original work on the labyrinth, author of "Primary Excision and Primary Suture of Accidental Wounds", works on otology, etc., has just completed a two-weeks' course in Denver on labyrinthine and mastoid disease which was attended by many specialists in that field from Denver and from other cities of this and neighboring states. He was hospitably received by the medical fraternity generally and addressed the Medical Society of the City and County of Denver on November 7. Dr. Bárány has already given such courses in Minneapolis, St. Louis, Chicago, and goes from Denver to Los Angeles and then to other cities both west and east.

FOR SALE.

FOR SALE—X-ray coil, 18 ma. capacity, to operate on direct or alternating current, 6 tubes, stand, table, 18 pieces in all; guaranteed. Price, \$150, cost \$900. Address — % Colorado Medicine.

Medical Societies

PUEBLO COUNTY.

Resolutions passed by the Pueblo County Medical Society in session as of November 7, 1922, addressed to St. Mary Hospital:

Inasmuch as St. Mary Hospital has been placed in Class A of Standardized Hospitals of the United States and Canada, and that this has been brought about by untiring efforts and lavish expenditure of money by you and the sisters in charge;

We, the Pueblo County Medical Society, pledge ourselves to render you every assistance in our power to maintain the present standard and to further increase the efficiency of the hospital.

We wish to express to you our sincere appreciation of the strenuous efforts you have made in order that St. Mary Hospital be rendered a safe place for the sick and suffering.

We hope that in the future the relations between the members of your staff be all that you could desire, and thus lighten the burdens which you have so courageously carried.

R. C. ROBE,
A. R. WILLIAMSON,
T. A. STODDARD,

Committee.

Colorado Medicine

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Editorial Comment

IS ENGLAND WAKING UP?

We have heard a great deal of the physical degeneration which threatens the countries of western Europe. The rapid development of industrialism in the nineteenth century exacted a heavy tax upon the physical vigor of several generations. The farming population was drawn into cities of mushroom growth, and there worked excessive hours in sweatshops, mines and factories, whose hygienic conditions were often a disgrace to civilization.

The worst feature of the earlier days of the factory system, with which the old Manchester school of thought was so unwilling to interfere, was its blighting effect upon child life. Little people of both sexes were put to work from the tenderest age, groaning under conditions which might have called forth a shudder from the galley slave of Rome or Carthage. The effect upon physical and sometimes upon mental faculties was a marked stunting which could not fail to be handed down to successive generations.

The greatest successes and the most frightful penalties of the industrialism of the nineteenth century fell to the lot of England, which side by side with a race of sailors bred another race of factory slaves and physical degenerates. France has inherited her own curse of physical decay from the slaughter of her finest manhood during the Napoleonic wars. Germany, now so successful in manufacture, had remained an agricultural people long after the British population crowded into the factory cities of Yorkshire, Lancashire and the Midlands. The population of the United States, recruited for many generations from the ruggedest bodies and alertest minds of northern Europe, is still largely agricultural, and hence physically robust.

There have been pessimists who argued that industrial peoples must in time become extinct unless they were constantly replenished, and so gradually replaced, by hordes of immigrants from more primitive lands. Although we are chiefly descended from English or British forebears, it is common to hear, among those who have traveled in the British Isles, comments upon the narrow and less sturdy frames, the pinched facial structure and receding chins,

which are more frequently encountered among native Britishers.

But every excess tends to bring its own reaction. There are large areas in the United States which are still, or were recently, less advanced in the matter of child labor than old England. And the medical inspection of school children, still conducted upon niggardly and grudging lines in many sections of the United States, has for fifteen years been upon a broad national footing in England and Wales. The result has been a distinct improvement in the physical condition of the rising generation. "The record of the advance in the physical care of the school child since 1908", says George Newman, medical officer of the British Board of Education, "is incomparably greater than anything of the same kind in the same sphere that has happened since 1870".

Universal medical inspection of school children was established in 1907 by act of the English Parliament for two principal reasons—first, because on account of physical disability many school children failed to reap advantage of a compulsory system of free national education, and second, because it was felt that a close and vital relation existed between the physical condition of the child and the health and capacity of the whole population.

It was found that no less than thirty-five percent of the children coming to school at five years of age brought with them physical defects and the seeds of disease. Visual defect is present in English children of school age in about ten percent, and approximately the same number suffer from disease of the nose and throat. Dental defect is present in sixty to seventy percent, and about twenty-five percent of the children are found in urgent need of dental treatment. From one to three percent of children of school age have some degree of deafness, two percent suffer from heart disease, three percent from anemia, and five percent from glandular enlargement. These figures exclude invalid children always absent from school, and "special" children.

In 1921 approximately 2,521,500 school children were examined in England and Wales. The cost of this department of social service is nearly \$14,000,000 annually. The average cost of the strictly medical service is something over a dollar for each school child in attendance at elementary schools. A heavy expenditure is required for special schools for the blind, deaf

and dumb, feeble-minded, epileptic, tuberculous and cripples, and for open-air schools for the feeble in health. Yet this expenditure is not entirely unremunerative, for it is found that fifty percent of the blind, eighty percent of the deaf, seventy-five percent of the cripples and forty percent of the mentally defective can be equipped for independent wage earning. The total number of physicians engaged (whole or part time), including specialists for consultation, is now approximately 2,000; and there are some three thousand nurses partly or wholly occupied in school work. Two hundred and ninety-one out of 316 school authorities have established school clinics. Of the 316 school medical officers who are the chief medical officers of the educational authority in the different areas, 283 are also the medical officers of health of the sanitary authorities in the same areas. This combination of the two services in one personnel has been rendered possible by co-ordination of school inspection work with the ministry of health, as provided in an act of Parliament in 1919. An important auxiliary in the systematic care of the health of English school children—one much debated at the beginning but now apparently established upon an unquestioned footing—is the provision of meals, especially breakfast, for those children whose home conditions are unsatisfactory in this respect.

But the care of health during school age does not cover the whole problem, "which", says Sir George Newman, "extends to both the years preceding and the years following school life". There can be no adequate solution of the problem of physical defectiveness until these periods are provided for. Dr. Joseph of Warrington, after special investigation, arrives at the conclusion that after all the care and expenditure bestowed on the child's education and physical welfare during school life there is an enormous waste of valuable effort and material through the slipshod manner in which a large proportion of the population are allowed to drift into any form of occupation; and he suggests that if more attention were paid to this matter there would in later years be less industrial unrest among adults.

W. H. C.

OUT OF EVIL SPRINGETH GOOD.

It is the philosophy of some that every occurrence, no matter how unjust or horrible it may seem at the time, ultimately results in good. If such a view were accepted unconditionally, there would be no excuse for efforts at betterment of human environment, prevention of disease and crime, or practice of medicine. The truth which does lie buried in such a belief is that the good which is to result from a calamity will be the prevention of future like calamities, and such an interpretation is the one which opens up the vast field of medical practice and medical research.

Applied to the recent attempt in Colorado to thwart medical science by making animal experimentation illegal, this philosophy is upheld by a practical result of far more importance than

the mere defeat of the attempt at legislation. The big result is that the public has learned a great deal about its health and about health measures; about what doctors are doing and hope to do; about the fraud, insincerity and perverse attitude of the antivivisectionists; and, let us hope, some other minor things—that the "initiative" has some bad features as well as good; that petitions should not be signed whose contents are not first digested by the signer.

This broader view of the recent antivivisection campaign is admirably expressed in an editorial in the Leadville Herald of November 10, 1922, entitled "A Healthy Discussion". In the course of a review in that light of the various initiated bills on the last election ballot, it has this to say about Bill No. 5:

"Apart from the actual issues involved in No. 5 bill, for instance, the discussion brought out by the attempt to prevent animal experimentation by means of a drastic law was exceptionally valuable. By means of lectures and talks by public speakers sent out by the medical fraternity, and by means of pamphlets and advertisements, a large section of the public which probably had no knowledge whatsoever on these subjects, learned of certain modern medical discoveries, the use of serums and antitoxins in the prevention of disease and the wonderful experimental work being carried on in laboratories, seeking surer, safer and more certain methods for the alleviation of human suffering.

"The campaign of publicity necessary for the defeat of the antivivisection measure tended to dispel a vast amount of public ignorance on the subject of vaccination and to rouse interest in the whole subject of the public health and the methods that are adopted to conserve it".

Such an opinion from the press can be construed as a reflection of the public mind, and the medical profession of Colorado, along with the Colorado Association for the Protection of Public Health, which latter engineered the campaign, can congratulate themselves on having been offered so valuable an opportunity to aid in one of the most important movements of today—medical education of the public.

We are grateful to the antivivisectionists for stirring us up. They defeated their own ideals by advocating them. It is sometimes good to do evil that good may result.

HYGEIA: AN AUTHORITATIVE HEALTH JOURNAL FOR THE PUBLIC.

In last month's issue of Colorado Medicine* editorial reference was made to the desirability of a journal published under the direction of the organized medical profession which would reach the layman with articles in popular style on medical truths and be conducted with the view of progressively educating the vast body of the intelligent public in matters of diseases—their causes, their effects on the body and their proper treatment—as well as personal and public hygiene. It is now possible to say that such a

*Medical Education of the Public, Colorado Medicine, November, 1922. p. 220.

periodical is about to be born! Conceived at the annual meeting of the American Medical Association last spring and caried in utero mentis with competent medical attention, all signs point to a normal birth in March after the usual nine months, of a healthy, vigorous male child which will cry lustily the truths that all should know.

There is probably no one thing which is so much needed to counteract the erratic teachings of what has been aptly called the medical underworld as is education. If people know the facts of pathology and are made to understand that they really are facts, they will then have a like ability with the physician to judge and sort their medical reading. A periodical of the type which the new undertaking promises is one of the avenues of approach to the public mind which has been largely neglected, but will now be utilized. Such a journal should be made as attractive to the general reader as the usual popular magazine, in cover, illustrations and general style, and the contents should be of a popular, well-written and authentic character, but devoid of the stilted style and technical phrases of the usual article in medical journals; and those are just the requirements the new journal will fulfill.

The first issue of Hygeia will be the April, 1923, number, but will be ready in March. A prospectus shows that there will be departments under the headings of Plain Facts, Articles, Child Health, Questions and Answers, Reviews, News and Views and Oh, Very Well; the editorial staff being Victor C. Vaughan, Morris Fishbein and Arthur J. Cramp; and that the services of lay special writers of note will be obtained for many of the articles.

It is understood that this magazine will be on sale at news stands and through subscription in the usual way of periodicals, at \$3 per year, but that a special rate of \$1 for eight months is offered to Fellows of the American Medical Association. Hygeia requests and expects the aid of the profession in putting itself before the public, and it is felt that its immediate success will be assured if doctors will themselves subscribe and also point out the value of the journal to their friends and patients. The particulars of subscription procedure and of the journal's makeup are well set forth in the advertisement on advertising page 17 of the Journal A. M. A., December 2, 1922.

At last! It has arrived!

STATE SECRETARIES MEET IN CHICAGO.

On November 17, 18, 1922, occurred the annual meeting, at A. M. A. headquarters, of the secretaries of the various state constituent societies. These meetings are held for the purpose of closer affiliation of the sister societies, for threshing out questions of organization policy, coordinating public health movements and holding a general "experience meeting".

The program, prepared in advance, by Secretary West, and followed expeditiously, follows:

1. "The Functions of the Council of the State

Medical Association. Introductory Remarks". Dr. Olin West, field secretary, American Medical Association. "What Is the Council Doing in My State"? Each secretary will be called on to reply.

2. "Programs of Work—Scientific and Otherwise—for State Associations and Their Component County Societies". Dr. L. B. McBrayer, secretary, Medical Society of the State of North Carolina.

3. "The Work of the Bureau of Legal Medicine and Legislation of the American Medical Association". Dr. W. C. Woodward, executive secretary.

4. "The Contact of the State Medical Association and Its Component Societies With Other Organizations and With the Public". "The Michigan Plan: The Joint Committee on Public Education"; Dr. F. C. Warnshuis, secretary, Michigan State Medical Society. "The Public Health League Plan"; Dr. F. B. Stephenson, secretary, Colorado State Medical Society. "The Iowa Plan: The Field Activities Committee" Dr. Tom B. Throckmorton, secretary, Iowa State Medical Society, and Dr. F. E. Sampson, director, field activities, Iowa State Medical Society. "The State Medical Association and the State Department of Health"; Dr. J. H. J. Upham, chairman, council on Health and Public Instruction, Ohio State Medical Association. "The State Medical Association and the Teachers"; Dr. John M. Dodson, chairman, Joint Committee of the American Medical Association and the National Education Association on Health Problems in Education, and Prof. W. B. Owen, president, National Education Association.

5. "The Promotion of Periodic Health Examinations by the Medical Profession"; Dr. Victor C. Vaughan, chairman, Council on Health and Public Instruction, American Medical Association.

6. Miscellaneous Topics: (a) "State and County Society Records"; (b) "The Non-Affiliated Physician"; (c) "Annual Dues—Are Present Amounts Adequate"? (d) "Transference of Membership From One State to Another".

It was astonishing how, no matter what subject was under discussion, the question of medical education of the public rose to the surface again and again. Dr. Victor C. Vaughan announced the coming publication of the new health journal, Hygeia (see editorial, this issue) and gave a glowing account of what is hoped for it in enlightening the intelligent public on modern medicine. It was also announced by Dr. Vaughan that, in accordance with a resolution adopted at the 1922 annual session of the A. M. A., the Council on Health and Public Instruction was working to produce a suitable blank for use in making the periodical physical examinations advocated in the resolution and would soon be ready to publish the blank. For the sake of general information on that resolution, it is here copied:

Resolution on Periodic Medical Examinations.

Whereas, The need and value of periodic medical examinations of persons supposedly in

health are increasingly appreciated by the public, it is recommended by the Council on Health and Public Instruction that the House of Delegates authorize the Council to prepare suitable forms for such examinations and to publish them in the Journal of the American Medical Association; and that the county medical societies be encouraged to make public declaration that their members are prepared and ready to conduct such examinations, it being understood that the indigent only shall be examined free of charge and that all others are expected to pay for such examinations. (Adopted by the House of Delegates, American Medical Association.)

The meeting was successful and enjoyable, everything possible having been done for the comfort and convenience of the guests by Secretary West.

F. B. STEPHENSON, Secretary.

STATE BOARD OF HEALTH NOTES.

On Sanitation and Objectors.

"Now it is not well for the white man,
To hurry the Aryan brown
For the white man riles and the Aryan smiles
And it weareth the white man down,
And the end of the fight is a tombstone white
With the name of the late deceased,
And an epitaph drear, a fool lies here,
Who tried to hurry the East." (Kipling.)

Recently, Brother Kipling, you have been accused of saying some unkind things about us, but I thank you for the above quotation, for it will serve as a peg upon which I can hang a sermon, that I have had in my system for lo! these many moons.

Who are some of the Aryans that the Health Officer meets in his travels? Here are some of them—

Those who
Oppose sewer systems.
Pollute streams.
Keep dirty streets and alleys.
Boycott health officers.
Refuse to report communicable diseases.
Break quarantine.
Refuse to report births.
Oppose animal experimentation.
Refuse medical aid for their families.
Maintain open typhoid privies.
Refuse vaccination.

There may be more of them—but this "dozen raw" will be enough for a starter. But in this country, the Aryans do not, as a rule, "smile" when the white man "riles." I was standing on the street in one of the towns in this state talking to one of the leading citizens, when there passed by a woman with the most supercilious sneer on her face that I ever beheld. "What's the idea of the icy eyebrow?" I inquired. "Oh," replied the l. c., "I voted for a sewer in this town twenty years ago, and she is still mad."

Many a doctor has lost his practice by trying to be a good health officer, as well as a good doctor—in some communities the two professions simply will not mix.

The polluter of streams usually has the time-worn excuse that water will purify itself in flowing a short distance, but sanitarians have long since learned that natural purification of that kind is not to be relied upon.

The disposition of some of the Aryans is well described in Hudibras:

" whose chief devotion lies
In odd perverse antipathies
In falling out with that or this
And finding somewhat still amiss;
More peevish cross and splenetic
Than dog distract or monkey sick."

I have often wondered how Moses came out with his orders to the Israelites, when he said:

"And thou shalt have a paddle upon thy weapon; and it shall be when thou shalt ease thyself abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee. For the lord thy God walketh in the midst of the camp to deliver thee and to give up thine enemies before thee; therefore shall thy camp be holy; that he see no unclean thing in thee and turn away from thee." (Deuteronomy xxiii, 13, 14.)

I'll bet some of those old fellows were shocked by the innovation. Hadn't they been dotting the landscape ever since they came up out of the Land of Egypt? Hadn't they lived on light bread and sometimes had to drink ditch water? And now this was the "most unkindest cut of all." Moses is said to have been a great sanitarian, but did he know that the dejecta he was trying to cover up was the habitat of the bacillus of Eberth? That there lived in waiting the *Anchylostoma duodenale* to infect the barefoot Israelite, or that the *Bacillus Dysenteriae*, another inhabitant, was aching to set up alvine discharges that would make the handler of the paddle work overtime? He may have known all these facts, but in the words of Mark Twain, "I am harassed with doubts."

P. S.—I may add that all Aryans are not laymen.

J. W. M.

HEALTH WORK OF THE COLORADO TUBERCULOSIS ASSOCIATION.

Colorado has made another step forward in public health nursing. Otero is the first county in this state to have voted the support of three public health nurses. This does not include the two school nurses employed by school boards in the towns of Rocky Ford and La Junta, which make a total of five nurses whose salaries are paid by public funds. This provides one nurse for about every four thousand persons.

This unusual advance came about through the efforts of the Colorado Tuberculosis Association. A tuberculosis and health survey was made in two of the largest towns which resulted

in active public health nursing organizations in the three principal communities.

The history of public health nursing in Otero County is interesting. A few farsighted persons believed that a project providing for three public health nurses supported by taxation could be carried on. But the general opinion was that it could not be done. The majority of the people believed that to support one nurse during these days of high taxation was all that could be expected.

The field secretary of the Colorado Tuberculosis Association, knowing that the need could not adequately be met with less than three nurses, worked diligently first in one community then in another to create sentiment in favor of the proposition. Being a nurse herself, she realized the tremendous need in disease prevention and care of the sick in this pioneer field, where there is a large floating and Mexican population. Having recruited a number of interested groups from all over the county, a public meeting was arranged for with the county commissioners. Members of the Lions, Rotary, Commercial and Federated Women's clubs from the entire county were present. An interesting feature of this meeting was that some of the heaviest taxpayers and most prominent citizens made stirring talks in favor of three nurses. This enthusiastic group convinced the commissioners that if the people were willing to tax themselves for better health, it was up to them to carry out their wishes. They therefore voted \$5,400 to pay the salaries for three public health nurses. The running and transportation expenses are to be provided through the Christmas Seal sale of the Colorado Tuberculosis Association.

Otero has led the way in Colorado. The only provision lacking to make a complete health unit in this county is a full-time health officer.

ELLA CYRENE BAKKE,

Publicity Secretary.

SMALLPOX IN DENVER.

Nine Months, November 1, 1921, to September 1, 1922:

410 Cases, 81 vaccinated, 329 not vaccinated. Most recent vaccination, 5 years ago, next most recent, 14 years ago. Other vaccinations ranged from 15 to 72 years ago.

123 Deaths, 13 vaccinated, 110 not vaccinated. Most recent vaccination, 20 years ago. Others ranged from 35 to 72 years ago.

September, 1922:

32 Cases, 10 vaccinated, 22 not vaccinated. Most recent vaccination, 12 years ago.

7 Deaths, 2 vaccinated, 5 not vaccinated. Most recent vaccination, 15 years ago.

October, 1922:

160 Cases, 31 vaccinated, 129 not vaccinated. Most recent vaccination, 8 years ago.

41 Deaths, 2 vaccinated, 39 not vaccinated. Most recent vaccination, 58 years ago.

November, 1922:

252 Cases, 54 vaccinated, 198 not vaccinated. Most recent vaccination, 7 years ago, except one vaccinated 10 days after exposure.

Others ranged from 9 to 81 years ago.

92 Deaths, 6 vaccinated, 86 not vaccinated. Most recent vaccination, 7 years ago.

The Thirteen Months:

977 Cases, 189 vaccinated, 788 not vaccinated. Most recent vaccination, 5 years ago.

263 Deaths, 23 vaccinated, 240 not vaccinated. Most recent vaccination, 7 years ago; next most recent, 13 years ago; next most recent, 15 years ago; next most recent, 20 years ago; next most recent, 40 years ago.

These statistics are culled from a very complete, itemized report of Dr. William H. Sharp-ley, health commissioner of Denver, in which are given the age, sex and name of every case, along with the data from which this statement is made. Of the 263 patients who died, only 23 had been vaccinated, and only one of those as recently as 7 years ago!

ERRATUM.

In the editorial, "A Challenge to Lawyers", November issue of Colorado Medicine, p. 219, fourth paragraph, sixth line, the word "thousand" should be "hundred".—Ed.

Original Articles

REPORT OF SIX CASES OF ACUTE PERFORATION OF CHRONIC DUODENAL ULCER.*

W. A. KICKLAND, B.S., M.D., F.A.C.S.
FORT COLLINS.

Acute perforation of chronic duodenal ulcer is of sufficient frequency to warrant bringing the subject to the attention of this society. By acute perforation I mean those cases of perforation of the duodenum in which the normal contents of the stomach and duodenum are found free in the abdominal cavity. During the past year a number of communications have appeared in the journals on this subject. In some of these the conclusions have been quite different from the ones I have drawn. I am writing this to draw attention to the large number of cases of acute perforation in proportion to the number of cases operated upon.

All cases of chronic duodenal ulcer which have come under my observation in which the diagnosis is reasonably certain, have been advised to have an operation performed. It goes without saying that all of these have not followed my advice, but quite a large percentage have done so.

During the past ten years I have seen thirty-nine cases in which a diagnosis of duodenal ulcer was reasonably certain. Of these nineteen have been operated upon. In twelve cases the chronic ulcer was found, and a posterior no-loop gastro-enterostomy was done. One of the twelve has had the gastro-enterostomy undone by another operator. The remaining eleven are living and well satisfied with their condition. One case had

*Read at the annual meeting of the Colorado State Medical Society, October 3, 4, 5, 1922.

been bleeding for two days at the time of operation. An eroded artery in a chronic duodenal ulcer was found and the hemorrhage stopped, but the patient failed to rally and died six hours later of acute anemia. In six cases there was a perforation of the ulcer base at the time of operation. In none of these cases of acute perforation was the patient aware that he had a chronic ulcer. In four of the cases, at the time of perforation a history was obtained which pointed toward a diagnosis of chronic ulcer of the duodenum. In this series of cases there were five men and one woman, all of adult age. Four of the patients were over sixty years of age. In all of these the attack came on suddenly while the patient was in good health. Three of the cases were diagnosed as acute appendicitis, one as perforation of the gallbladder. In the last two the pre-operative diagnosis was that of a perforating duodenal ulcer.

Differential diagnosis is to be made between duodenal ulcer, gallstone colic, appendicitis, acute pancreatitis, gastric crises, and pneumonia with basal pleuritis.

There is one radical difference in attitude of a patient with perforation of a viscus and one with an obstruction as in gallstone colic. In a perforation the patient is in a quiet, rigid, expectant, terrified attitude. He doesn't want to move and is forced to move with difficulty. In gallstone or renal colic without perforation the patient is restless, and throws himself about on the bed. He cries out with pain, while the patient with the perforation does not dare to exercise his abdominal muscles enough to use his vocal cords. In duodenal perforation the pain comes on suddenly, and there can usually be obtained a history pointing to chronic ulcer. In perforation of the gallbladder or appendix there is a history of gradually increasing pain from six to twelve hours before perforation occurred. In acute pancreatitis the pain comes on suddenly. There is often persistent vomiting and collapse, with belching and hiccoughing. When the disease is established one can usually find some edema of the abdominal wall.

A definite diagnosis between acute pancreatitis and perforated duodenal ulcer in the early stages can only be made at operation. Gastric crises and basal pneumonia with diaphragmatic pleuritis should always be kept in mind.

In the last five of the cases reported, a posterior no-loop gastro-enterostomy was done, and all of them recovered and are satisfied with the result. In one of them the perforation had occurred eight hours before, and the patient had traveled twenty-four miles by auto before the abdomen was opened. In case five the perforation had existed eighteen hours, the pain having been kept bearable by morphine, hypodermically given.

Following is a detailed account of the six cases of acute perforation.

Case 1.—January, 1912. Male, aged 32 years, lawyer. Alcoholic. History of chronic indigestion. Ate a large amount of cove oysters and was taken two hours later with violent pain in the abdomen. Diagnosis: appendicitis. Operation advised. This was refused until forty-eight hours

later. When the abdomen was opened a large amount of bile-stained mucus and a perforated ulcer of the duodenum were found. Because of the poor condition of the patient a drainage tube was introduced and the operation stopped. Patient died four hours later of general peritonitis.

Case 2.—May, 1915. Male, aged 36 years, ranchman. Taken sick suddenly at 10 p. m. Violent pain in abdomen. Saw him at 1 a. m. Very rigid right rectus muscle, tender all over abdomen. Nauseated, but unable to vomit. One-fourth grain of morphine given hypodermically did not relieve. Lying on side with legs drawn up, immovable and groaning with pain. Diagnosis of acute appendicitis. On operating, the appendix was found to be normal, but a perforating duodenal ulcer was found one and one-half inches from the pylorus with an opening three-eighths of an inch in diameter. The opening was closed with two rows of linen sutures, and a posterior no-loop gastro-enterostomy was done. Drainage was used. Twenty-four days after operation the patient went home well. X-rayed January, 1917; new opening found to be patent, with no barium passing through the pylorus. Patient reports that now, aside from an occasional attack of indigestion, he is in good health.

Case 3.—July, 1915. Male, aged 67 years. Works on ranch. Eight hours ago taken with violent pain in the epigastrium, which continued after having received one grain of morphine hypodermically. Examination shows pulse 100, temperature 99°. Whole abdomen rigid, board-like. Complains of great tenderness all over abdomen. Diagnosis, acute appendicitis. The patient was brought over twenty-four miles of rough roads to the hospital. Operation shows perforation three-eighths of an inch in diameter through the base of an old duodenal ulcer. Peritoneal opening closed with two layers of linen sutures, and strip of omentum sewed over line of suture. Posterior no-loop gastro-enterostomy. Patient left the hospital at the end of two weeks and was doing well when last heard of.

Case 4.—January, 1918. Female, 65 years of age. Had trouble with stomach for years. Pain in region of gallbladder and appendix. Relieved at times by eating. Sometimes eating made pain worse. Six hours ago taken with very severe pain in region of gallbladder. Operation shows perforating ulcer of duodenum, gas and bile coming out through the opening. Edges of ulcer thick as if beginning of carcinoma. Posterior no-loop gastro-enterostomy, catgut sutures used. Drainage tube introduced. Patient left hospital, wound healed, within three weeks. Doing well at the present date.

Case 5.—February, 1921. Male, 64 years of age. Indigestion ten years. Eighteen hours ago taken with severe pain in abdomen and vomiting. One-fourth grain morphine failed to relieve. Whole abdomen rigid, tender on pressure over stomach. Diagnosis: Perforating duodenal ulcer. Operation shows perforation one-half inch in diameter on anterior surface of duodenum, through an old callous ulcer. Edges of ulcer drawn together with catgut, and a strip of omentum sewed over line of suture. Posterior no-loop gastro-enterostomy. No drainage. Wound closed by first in-

tention. At present patient is doing well and has no abdominal symptoms.

Case 6.—April, 1921. Male, sixty-three years of age. Has had trouble with indigestion. Sour stomach for years. Two hours ago taken with vomiting, and pain in upper abdomen. Now the upper abdomen is board-like. Pulse 60, temperature 98.6. Patient on the floor on his knees, doesn't want to move, groaning with pain. Diagnosis: Perforated duodenal ulcer. Operation shows perforation five-eighths of an inch in diameter, through a callous ulcer. Abdominal cavity contains a large amount of thick, greenish fluid. Opening in stomach closed with catgut, sutured with one layer of linen. Posterior no-loop gastro-enterostomy with catgut. Patient left the hospital at the end of two weeks, and now says he is entirely well.

DISCUSSION.

W. T. H. Baker, Pueblo: This paper is one of great interest to everyone. I think the Doctor has given us information as to what he does in a very well put and pleasing manner. We naturally must not all agree with everything that is said in any one paper. There are conditions where only the individual case can clear the point, and those must be decided at the particular time. There is one thing in regard to diagnosis in the cases of perforation, not only of the duodenum, but of the whole abdomen which I some time ago read, and which has been tried out in a number of cases, and that is a sign that has been given by someone whose name I don't remember; where an abdominal viscus is perforated, the heart sounds can be distinctly heard by stethoscope all over the abdomen, almost as clearly as over the heart. In a number of cases this has been proven out and verified. It is a sign which we frequently do not see mentioned, and I am merely mentioning it in order that it may be taken for what it is worth, and if further opportunity is given I should like to have it tried by others to see whether or not it does really apply in all cases. I have found in some cases that it does; in other cases it does not. The question as to whether or not Doctor Kickland is right in stating that all cases of duodenal ulcer should be advised to have immediate operation and should be operated upon shortly after being advised, is also one about which there may be some doubt. Friedenthal, of John Hopkins, states that fifty-five percent of the cases of duodenal ulcer can be cured by means of ambulatory treatment alone, and seventy to ninety percent can be cured under hospital régime. Sippy also makes the statement that ninety percent of duodenal ulcers can be cured by means of dietetic and medical treatment. The pendulum has swung somewhat from what it was two years ago when we thought that all cases, or at least a great proportion of the cases, should be operated upon for the relief of gastric and duodenal ulcer, and even at the present time, as late as the year 1921, Doctor Ochsner made the statement that if most of these cases can be treated before obstructive conditions present the digestive tract will perform its function in such a satisfactory manner that the patient can get along much more comfortably than he can by means of operative procedure. It was at the same meeting that Eggleston made the remark that no matter how perfect your surgery may be, a stomach or duodenum which had been healed by means of medical treatment, performs its work better than under surgical procedure. Ochsner also made the statement at that same meeting that no matter how exact the surgery might be, a surgically treated stomach did not perform its functions as well in the majority of cases as one that had not been operated upon. So we see the pendulum has swung, and that we do not know exactly at the present time just what is the proper procedure in

all cases. I am speaking now of ulcers that have not perforated. Of course, where an ulcer has perforated, there is only one course to pursue, that can be pursued, and that is immediate operation. The statistics that are given concerning operation are rather a surprise to me, because I had always been led to believe that where operations were performed for the relief of perforation, as little surgery should be done as is possible to do at that time. In other words, it is usually a life-saving procedure, and as little surgery should be adopted as possible. In other words, where perforation occurred, and had existed for a number of hours, the procedure would be to open the abdomen, to drain and then wait to see whether or not the patient would recover and later on do an operation, of course, closing the perforation if it were easily found. But in looking up these statistics, or reading upon the subject, we find that that does not give us much relief or as good a mortality rate as we would expect.

From 1910 to 1919, R. Warren had occasion to operate on seventy-two perforations:

Suture only—6 lived—9 died—Recovery rate 40 percent.

Suture and immediate gastro-enterostomy—34 lived—9 died—Recovery rate 72 percent.

Suture and gastro-enterostomy after a few days—1 lived—1 died—Recovery rate 50 percent.

Suture and jejunostomy—1 lived—5 died—Recovery rate 17 per cent.

Pack and drainage—1 lived—1 died—Recovery rate 50 percent.

Leonard Freeman, Denver: I think everyone must admit that this is an important subject for discussion, because in operating for acute appendicitis, which is so commonly done all over the world, at any moment we are apt to run into a case of perforated duodenal ulcer. The two things simulate each other very closely, because the contents of the stomach pass out through the perforation in duodenum, run along between the transverse colon and the liver, around the right side and down into the region of the appendix; and it would take Osler himself to make a correct differentiation between a perforated appendix and a perforated duodenal ulcer. Therefore, we should have our ideas crystallized as to what we are going to do in case we happen to fall into this trap.

The main question always has been as to whether a gastroenterostomy should be done at the time of the operation or whether it should not be done. In favor of doing it is the fact that a secondary operation will not have to be done further on. Against doing it is the idea that we may be attempting too much, which would lead to disaster. Both of these things are true and they are not true. If the patient's condition is good, and if the perforation has not existed too long, so that peritonitis has begun, then a gastroenterostomy should be done, as Dr. Kickland has advocated. If the patient's condition is not so good, and especially if a general peritonitis has begun, then it is better not to do a gastroenterostomy, but simply to sew up the opening and perhaps drain the abdomen. If, however, a general peritonitis has not started, and we do a gastroenterostomy, it may not be wise to drain at all, if there is not much material from the stomach in the abdominal cavity, and this is washed out, as Dr. Kickland has advocated. In case the ulcer cannot be sewed up, as one would certainly do, if it seemed possible, then one can obtain good results by packing around with gauze down to the site of the ulcer, and trusting to the ulcer taking care of itself. It does take care of itself in the majority of instances, as I have had happen several times, and the patient recover equally well, apparently, as if the perforation had been sewed up.

Chas. F. Andrew, Longmont: I am sorry I did not get up early enough to hear my good friend, Dr. Kickland's, paper this morning because that is really what I came down here for. Little did I dream that the President meant what he said last night when he announced that we would be-

gin promptly at 8:30 this morning. Whenever I see anything with reference to the upper right quadrant of the belly, I become very much interested. I think that is the most interesting part of the human body, as far as surgery is concerned. It is a sort of Pandora's box to me, because it is always full of surprises. I brought with me a few reports of cases that we have had since 1918 on perforated duodenal ulcers. Our procedure has been that when we get in there and find perforation, we generally go into the duodenum and close up and do our secondary operation, especially if the cicatricial tissue has interfered with the action of the stomach. I am awfully sorry that I did not get to hear Dr. Kickland's paper, because I wanted to see what the diagnostic symptoms were. There is one symptom that we have generally noticed in perforated duodenal ulcer that I would like to hear some of the surgeons comment on particularly today, and that is the referred pain toward the acromion, scapula and up the side of the neck. We find that in nearly all the cases that we have had. Also these three symptoms that I rely on greatly:

1. Pain occurring in separate attacks with intervals of an apparent recovery.
2. Pain appearing a few hours after meals.
3. Pain which upon ingestion of $\frac{1}{2}$ litre of milk, disappears suddenly after a gaseous eructation.

These added to all our general symptoms should fix the diagnosis.

I would like to report the cases we have had recently, two of which are in the hospital at the present time, with perforated duodenal ulcer. A young man by the name of Fred Culver, age 47, was operated in January of 1919. Nora Adams, age 27, operated in October. These two were recovery cases. Fred Smith, age 54, complete recovery—perforation. Mrs. P. K., female, age 49, brought in at a late hour with terrific hemorrhage. That was fatal. A Miss Johanna Thompson, female, age 12, April, 1921, recovered. The two patients in the hospital at present are John Blunt, age 45, who was recovering very nicely when I left, and W. E. Wilson, age 65. It is peculiar to me, the ages of these people that suffer from duodenal ulcer perforation, running over the age of forty. Very few young people are found. The ratio of men to women is one to three, that is, three men to one woman, suffering from this trouble. It seems to me that Mayo and Moynihan have the diagnostic symptoms down to almost as classic grouping as we can get. A duodenal ulcer is one that interests, I think, all of us, and I hope the discussion will be very free this morning.

C. E. Tennant, Denver: The subject of perforation in the upper right quadrant of the abdomen, is, as Dr. Freeman has said, one of extreme importance, because we do not know just what is going to happen when the abdomen is opened. I was unfortunate in not hearing the first part of Dr. Kickland's paper. The thought has always occurred to me in meeting these problems that perhaps there are just two things that are extremely important. First, is this, that there is always a history of preceding stomach trouble or indigestion. Almost invariably this occurs and it is one of the important signs in determining what course shall be pursued. Second, that in these cases of perforation, as a rule, the pain occurs quickly, sharply, very much as in a perforation the result of a gunshot wound in the abdomen, and a certain element of shock occurs with it. Then, when we have these problems to deal with we have the history of a stomach problem having gone on for several years, then shock, and, finally, constant pain in the abdomen. Following the perforation there may be an on-rush of the stomach contents which may gravitate to the lower abdomen in the portion of the peritoneal cavity that is invaded by the material from a perforated appendix. The next question is how long since that perforation has occurred. I think we all agree that within eight hours is the safer limit in which we can operate and have recovery occur, and that during

the period of eight hours the peritonitis has not developed to such an extent but that the operation for gastroenterostomy can be done at the time the primary conditions are met. So we have to think of, first, the fact that there has been a stomach problem for some time past; second, that we have had a sudden on-set of something in the abdomen, and that there must have been a perforation, and that in such an instance an operation should be done as quickly as possible. When the eight-hour limit has passed complications are going to occur which are many and serious. I reported some two years ago a case of that type which had gone about forty-eight hours. An operation was done, with nothing more than drainage, and yet following this we had an abscess which eventually produced an extensive erosion of the liver, and of course death occurred eventually. In these cases of acute perforation we cannot afford to wait or delay the operative procedure. It should be taken up just as quickly as possible and within the eight-hour period, and I think we are then reasonably safe in being able to perform both the drainage and gastroenterostomy. In relation to this question that is being thrashed out as to medical and surgical treatment of these ulcers: it perhaps has little bearing on the subject just now, because we are talking on perforations, but it has always appeared to me that when we have these ulcers of long standing, with a definite cicatrix, they are impractical to treat from a medical standpoint, and I think that is where this medical treatment fails. In these old ulcers the result of constant irritation of the gastric juices, it is impossible to cure them with medical treatment, and a radical surgical operation is the only successful means of eliminating the scar tissue and giving eventual recovery for the patient.

O. M. Gilbert, Boulder: I do not think it fair that the surgeons have the whole discussion of this subject. As to gastric and duodenal ulcer, it is difficult to discuss them separately, because they are as a rule not distinguishable, and the treatment is, and the principles are, much the same. There is no question but what the ulcer, the recurring bleeding type, or the ulcer that is penetrating, should by all means be treated surgically before it perforates and not wait for it to perforate. On the other hand, I think the impression has become too general that that is the only way that peptic ulcer can be treated successfully. As recently as seven years ago, Dr. Charles Mayo made the statement that ulcer may be relieved, not cured, by medical means; but I have a pathological specimen at home that I wish I could show here; a case of a very bad duodenal ulcer, it being a very bad surgical risk from several points of view. The surgeon smiled and said, "There is one to try your medical treatment on." We had a pretty stormy time, but we carried it through, and that man had the good sense, three years later, to lie down and die with a pneumonia so that we could get an autopsy, and I have that specimen at the university laboratory at Boulder. Dr. Witman has examined it most critically and has declared it to be perfectly healed. I have one other, in the laboratory at St. Louis, that occurred some time before. So there is no question that the less severe cases, if they are treated faithfully by proper medical treatment, can be cured. They are now treating quite a number medically at the Mayo Clinic and are well pleased with the results. I believe Dr. Sippy was right when he said that a proper medical treatment will do all that a gastroenterostomy can do. If an ulcer cannot be excised—if I have one in my abdomen I want it excised—but if it cannot be excised, I believe that proper medical treatment will do all that surgery can do for it. We should remember that there is not a palliation but a cure in a great majority of the cases, if we do our duty.

W. W. Grant, Denver: I wish just a moment to discuss this question with reference to the diagnosis. Dr. Kickland is so well and favorably known to the profession that any conclusions that he arrives at in operative surgery are always en-

titled to the most respectful consideration of the profession. I shall allude particularly to the differential diagnosis of such conditions as duodenal ulcer, gallbladder infections and chronic appendicitis. The symptoms of perforation of duodenal ulcer are so urgent that there can be no question as to what procedure should be adopted no matter where the perforation may be. I wish to call attention to two cases told me by one of the attending surgeons, one, a gastroenterostomy for duodenal or gastric ulcer. The patient did not do well. Consultations were held, and one of the surgeons contended that the trouble was really a prostatic obstruction, and a kidney complication. A postmortem showed no gastric or duodenal ulcer. It seems to me a thorough analysis of the clinical history of such a case would have revealed the nature of the disease. In the other case, the surgeon operated for prostatic obstruction, the operation completed without the slightest difficulty. I mention these cases simply to enforce the necessity and importance of making careful clinical histories before operation. The surgeon operated; the patient did not do well; there was no hemorrhage from the bladder, and in the course of thirty-six hours the patient died. A postmortem revealed the condition spoken of by Dr. Kickland, perforation of a duodenal ulcer and bleeding into the intestine, and not into the peritoneal cavity. It seems to me that it applies not only to duodenal and gastric ulcers, but there is too much of a tendency to resolve the diagnosis in the laboratory rather than from the clinical history of the case. We do not pay sufficient attention to the clinical history in order to arrive at a diagnosis and depend too little upon our own experience in the handling of surgical and medical conditions. I simply want to call attention to this important point.

L. J. Weldon, Denver: All of what has been said is certainly interesting, but nothing has been said as to just exactly how these perforated ulcers should be dealt with. We all seem to agree that all perforated ulcers should be operated upon and as soon as possible, but just what are we going to do with the free edges of the ulcer when such conditions are encountered? If found on the anterior wall or upper curvature of the stomach or certain portions of the duodenum, undoubtedly they will be easy to deal with. But no matter where located, their edges should be dealt with in about the same way. We must not forget that the infection which produced the ulcer is located within the ulcerated wall of the viscus involved, and therefore these free edges should by all means be trimmed away or cauterized before any suturing is done. It does not matter so very much what sort of suture material is used, so long as the opening is closed snugly and the peritoneal surfaces brought together. But the circumference of the ulcer must be destroyed. As Dr. Freeman has suggested, we may leave it entirely unsutured. But in such a procedure it is a pretty wise idea to tack a piece of omentum over the ulcer itself. Nature will take care of the rest, if the opening is not too large, and the omental covering is complete. The choice of methods for destroying these ulcer edges is probably the cautery, heated to a cherry red and used very cautiously, taking great care to only touch the edges of the ulcer. However, if our operating room is not equipped with the cautery, then the edges should be trimmed away. Whether it be a small or large callous ulcer, or a fresh or old ulcer, the same method should be applied. In all cases a posterior gastroenterostomy should be done, as has been pointed out in previous discussion.

Dr. Kickland (closing): I am very much gratified that these discussions have brought forth so much that is interesting. I have not very much to say in answer, except that five of the cases in which I operated with gastroenterostomy, lived. As far as the medical treatment is concerned, fifteen percent of the cases operated on were perforated at the time of operation. Three of the cases in which the perforation occurred were over sixty

years of age. These three certainly had time to be cured a number of times during their lifetime, and still they had their old ulcer which perforated and had to be operated. Fifteen percent of these cases were perforated, which is almost as large a percentage of perforations as we see in appendicitis. I believe that we all agree that all cases of well marked appendicitis should be operated upon and the appendix removed.

In view of the above it seems to me we are quite justified in operating all cases of chronic duodenal ulcer in which the diagnosis is reasonably certain.

THE TREATMENT OF MALIGNANCY BY RADIATION.*

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Considering the wide-spread interest in the treatment of disease by radiation, it would seem timely to have a discussion of the subject before this society. We hear of its use in a variety of conditions and with varying results. Although this line of treatment is especially adaptable to many conditions, I wish to confine this paper to malignant diseases, both superficial and deep, as treated by the radiation from either radium or the x-ray tube. As in the treatment and management of many diseases either medical or surgical, the technic of procedure is of the greatest importance to obtain the best results, and the existing pathology should be our basis of work.

Soon after the discovery of the x-ray it was used for the treatment of superficial lesions. At that time no filters were used, there was no method of measurement, very little knowledge of the ray, and yet some of the results were brilliant. Usually, however, the results were bad and the failures stimulated further investigation, just as at the present time failures have led to improvements. Filters of various materials were then used to cut off the more superficial rays, with a slight improvement in the percentage column. The cross fire method with still deeper penetration was later utilized and up to the present time has been the technic of choice. This gave an occasional brilliant result, but with no uniformity. The skin and the more superficial glands were affected beneficially, but the deeper lesions were only occasionally relieved. While treating with this method I have had occasion to have glands removed which Dr. Hillkowitz was kind enough to examine for me. These showed definitely the effects of the ray on the cancerous tissue—in some cases leaving only a hard fibrous gland, and in others a fibrosed gland with small nests of cancerous cells walled off from the surrounding tissue. I became convinced that if we could get sufficient radiation of the proper kind into cancerous tissue we would be able to destroy it. This principle holds today and is the motive for the high powered machines.

Within the last three or four years, Dessauer of the University of Frankfurt devised the method of utilizing the more penetrating ray. He found that by moving the tube away from the body a great distance the softer rays were filtered off and one of a greater penetration was left. Added to this a higher filtration of aluminum, and later of copper, made it possible to

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more nearly approach the ideal. As this distance and filtration increased the time markedly, larger transformers and higher voltage were necessary to obtain the same body dose. The Coolidge tube made all this possible. The invention of the electroscope for measuring the hardness of the rays and their quantity now came into use, making the whole a method of precision.

The next step was to use a water phantom and determine the action of the rays within this phantom by the above method of procedure. It was then possible for Dessauer to make charts showing the quantity of rays at any point within the body. He found by measuring the hardness of these rays it was possible to chart any body, and show the necessary rays that we must apply upon the surface to get the desired amount within any tumor. Then with our powerful apparatus it also becomes possible to deliver this desired quantity of rays within the tumor mass.

In brief, our procedure is as follows:

After having installed the apparatus necessary to give us certain radiation, we then check the quality and quantity of these rays with the electroscope as delivered by this particular installation. Having done this, we are then able to compute the dosage for any size person, according to the depth of the tumor. Each person is measured, the tumorous growth located and the quantity of radiation necessary for the destruction of the tumor computed. If our measurements are correct and our clinical experience sufficient, this dosage will be very accurate.

This brings us to the consideration of our standard dosage. We speak of dosage in terms of the skin erythema, and the quantity of radiation necessary to destroy any given kind of tumor is calculated in terms of the skin erythema. This is a varying quantity according to the worker, but is of the greatest importance. It immediately becomes evident that the greater degree of erythema we are willing to produce, the greater effect will our treatment have upon the malignant growth, as the dosage within that growth will be correspondingly greater. One radiologist is willing to produce a marked erythema, while another prefers to stay within more conservative limits. At any rate, he must make up his mind as to what degree of erythema he desires to produce and use this as his basis of future calculation. If his work is of sufficient accuracy this erythema may be repeated with corresponding accuracy, and therefore with safety. Considering the importance of the disease which we are treating it would seem that it were justifiable to produce as great an erythema as possible and yet stay within the range of safety. At no time, however, is it justifiable to produce such a degree of skin change as to add to the patient's misery, remembering that our first principle in medicine is not to make the patient any worse.

These remarks are also applicable to radium radiation, except that the technic of application is slightly different. We can calculate our dosage by a similar method and then utilize the radium tube or needle to apply the quantity of radiation desired. There is, however, one marked difference—that is that we are not able to in-

crease the output of our radium at will. This can only be done by adding larger quantities of radium. The principles of filtration are similar, but in place of getting the radium tube away from the body it is usually placed within the tissue. This is necessary because the quantity of radium possessed by any one person is not sufficient to allow a large enough dosage with the tube at any great distance from the body surface. The result has been disastrous in that the tissue immediately surrounding the tube receives the desired quantity of rays, while the deeper lesions are more than likely stimulated to a more rapid growth. As a consequence of this lack of knowledge of radium, the medical profession is on the point of losing one of the greatest aids in the treatment of malignant disease.

Inasmuch as malignant diseases have definite pathology, a clear knowledge of this pathology should be the basis of our work. As pernicious surgery can be very harmful, so improper radiation can be disastrous. It is not a local disease, but a general one, often associated with certain constitutional factors, and these always influence our results. Whether or not the causative factor is inheritance, infection, constitutional, or local irritation, is not known—yet these same factors enter into our consideration and should be removed wherever possible. Often it is desirable to change the patient's environment, method of living, and give attention to the body metabolism.

Tumorous growths vary greatly in their malignancy, some forming metastases very rapidly, some by the blood streams and others by the lymphatics. One form of sarcoma may be malignant from position and size only, while another with a smaller primary growth will form metastases early, or be carried in the blood stream. Again, the resistance to radiation is different. For example: If we call the skin erythema 100, one form of sarcoma may require 70 for its destruction, while another might require 130 or even 170. It then becomes evident that if the intestinal tract will only stand 130 it is impossible to have very much effect upon a tumor requiring 170 for its destruction, without injuring the surrounding tissue. It must also be remembered that if anything less than 60 percent of the skin erythema dose is applied to a tumor the result is usually a stimulation of a more rapid growth. Only recently have I had occasion to see a cancer of the face arising from the skin, in which the cancer had a greater resistance than the skin itself. As a result, when the usual skin dosage was applied, the cancerous tissue grew rapidly. Again, the primary growth has a greater resistance than the secondary metastases. It is not the purpose of this paper to go deeply into the biological effects of radiation, but briefly we notice certain end results. If the pathology is not too great, the lesion may be absorbed with little or no cicatrization. Another one may be broken down with discharge of necrotic material, with scar formation following. A third result may be that of fibrosis and later hyalinosis. In the latter case after such a healing, we must be careful in our manipulation, our surgical procedure, that we do not open up the nest of cancerous cells walled off by the fibrous tissue.

With these points in mind can we then lay down certain principles of treatment? Let us place first a consideration of the pathology present in our patient. After a careful survey of this pathology and the general condition of the patient, we should be able to outline our method of attack. Will it be surgery or radiation? Or is it a hopeless case in which any treatment is only useless and adds to the discomfort of the patient? In our consideration of surgery I feel that wherever possible the malignant growth should be removed, remembering that this is the older and more tried method. It is certainly better to remove cancerous tissue en masse than it is to treat it with radiation, with the prospect of leaving some of it behind. Neither do I feel that it is always true that to operate and leave some cancerous tissue behind is worse than no operation at all. For example: If the primary growth is removed by surgical procedure we have metastases of a lower degree of virulence for treatment by radiation. A large breast is better removed, leaving a few glands for radiation treatment, than to try to relieve the patient of the growth beneath a mass of tissue by this method alone. This is all with the understanding that the proper surgical skill and judgment are exercised. Otherwise it would become a dangerous method to follow.

Our next consideration is, what cases shall be treated? Of the cases operated, the benign are immediately ruled out of this class; of the malignant ones, which shall have post-operative radiation? Should they be treated in routine, or again have we some selective choice? It would seem that to treat every case post-operatively as a routine would be decidedly mechanical, though perhaps modern. Rather, would it not be better for the surgeon to exercise his medical judgment as to whether he removed the entire cancerous tissue, thereby making the treatment unnecessary—remembering that whenever in doubt, the radiation treatment should be instituted? It would also seem advisable in those cases where x-ray treatment is given that the massive doses should be applied as though definite pathological tissue existed. If, by experience, we find that it is impossible for the surgeon to say when he has removed sufficient tissue to be certain that all malignant disease is also removed, then radiation treatment will be necessarily given in routine. It would also seem practical, inasmuch as cancer is spread by the lymphatics, to block these lymphatics by radiation before operation.

In the inoperable class or those operated which require subsequent radiation we have one surgical principle to remember, namely: to treat widely of all evident malignant involvement. The disease is usually spread beyond the mass that we may see or feel, and to leave any, means the loss of our patient. This requires the knowledge of the location of the disease, the method of spreading and the direction in which it is most apt to metastasize. The treatment of the primary growth alone is nearly always harmful.

Our second consideration is that we must get a sufficient dose into the tumor in order to have a beneficial result. This may mean the application of radium, x-ray, or more frequently the

combination of the two under the methods that I have previously described. Here again the clinical experience in dosage is of greatest importance, remembering that after all the electroscope is only an instrument of greater or less precision and must be checked by wide experience.

Our final principle, but certainly not the one of least importance, is that of the general condition of our patient. The giving of these massive doses of some 200,000 volts over a period of several hours, will throw so much toxin into the system that we may overwhelm our patient. This means preparation by examination of the blood, urine, general metabolism, and the necessary preparation for the elimination of toxins. To overwhelm our patient lowers the general body resistance and may be worse than no treatment at all. The after-care is as important as in any major surgical operation.

It is too early to say much about results in these cases. We have been using massive doses for about one year and a half and feel that it is a distinct advantage over our previous methods. Certainly the results are uniformly good and many cases are clinical cures. It is too much to expect that we shall be able to add any great percentage of cures to those already obtained by surgical methods, but even five or ten percent improvement makes it quite worth while. The greatest benefit will necessarily be in the early operative cases. The inoperable cases with a large amount of pathology are benefited in practically all cases, and in some to the extent that we are no longer able to locate the malignant disease. Yet I think that most of these will have a return. As our knowledge of this method of treatment increases, the greater will be our percentage of cures. It takes considerable time to build up one's dosage to the greatest point of erythema within the range of safety, and until such is established any worker cannot expect the best results. In nearly every case of failure there has been an insufficient or improper dosage given. Considered as a whole, the method can be made quite safe. The x-ray burns have previously been due for the most part to a failure to insert the proper filter, just as a surgeon may forget to remove a sponge. Again, if we treat a sufficient number of cases the percentage of chance tells us that we are sure to have an occasional bad result, just as in any other medical procedure. With the present method it is possible to fix our filter so that it cannot be removed, and with the other modern facilities, our patient is quite safe.

In concluding, may I call attention to the responsibility assumed in the treatment of malignant disease. Here, as in no other, does it practically in all instances mean life or death to the patient. We have no method which calls for too much optimism, and yet we must have optimism in order to properly manage the case. The best results will be obtained by the proper balancing of surgical methods combined with radium and x-ray radiation.

DISCUSSION.

C. E. Giffin, Boulder: I should like to commend the enthusiasm with which our x-ray men have attempted to meet the responsibility of attacking

the cancer problem. You will find them tearing up their laboratories, remodeling them, lining the sides of the wall with lead, and altogether going to a great expense to gain a small fraction or percentage of improvements in our cancer results. I should also like to express my appreciation of the conservatism and sanity which goes with the process. Having put many hundreds or thousands of dollars into new equipment, it would be very natural to expect air-castles—air-castles which might tumble on their heads. There seem to be, however, no air-castles with those with whom I have discussed this matter, and whose laboratories I have seen between here and St. Louis. You ask them as to what they expect to get in a given case, perhaps of a carcinoma, say of the uterus, and your answer is not what you might expect, not "We are going to cure them all"—but their answer is, "We feel that they will be better than they were, and we feel that here and there, there will be a case of real cure." The next point that I wish to comment upon is this, the spirit of cooperation which we everywhere found during that investigation, the spirit of cooperation between the radiologist, the surgeon and the internist. Here again one might expect a tendency to take unto themselves rather more than conditions would warrant, a tendency to take from the surgeon work which was the special field of the surgeon before the x-ray came even into general use, but we do not find that to be the case. I remember an instance of inquiring definitely of a well-known radiotherapist, "What are you doing with this breast?" The answer was, "Well, it was inoperable from the point of view of our surgeons when the breast was referred to us but we now think it is about time to turn it back to the surgeon." Again we will encounter another case, and we will ask, "What are you doing with this case?" It is a case which has been operated. "We are now doing what we can in addition to the operative procedure to prevent recurrence." Another case of a similar type, perhaps again of a carcinoma: "What are you doing with this case?" "It has been under prolonged radium treatment and we are now attempting to broaden the field of the usefulness of the radium." I have one other point—having watched these gigantic machine operations, I wish to express the hope that "Big Berthas" of this size may exist well within the confines and the jurisdiction of those who are well trained to shoot them.

H. P. Brandenburg, Denver: This is a well considered paper and quite timely. I do not believe, after being at St. Louis this spring, that anyone could come here without being enthusiastic about the method and the treatment as outlined by Dr. Wasson. There was only one thing: I may have misunderstood, and it may be an erroneous idea, but I got the idea from Dr. Wasson that probably radium therapy was not as popular as it has been in the past and was not going to be more popular in the future. Now, the American Radium Society had the biggest meeting they ever held in St. Louis, and there was more enthusiasm there than there was in the strictly x-ray section; and in the outline of the use of radium, it is still in the same class as the x-ray in regard to treatment for its own selected cases. True, the same proposition holds good as does with the x-ray, the intensity of the rays from the radium at a distant point, varies inversely with the square of the distance, the intensity falling off rapidly with the increase in distance. But the radium people, the operators generally, have undertaken to overcome that by the even distribution of radium, the application being not in one capsule. The dose is divided and placed in needles with which one can infiltrate the growth, thereby getting a cross fire action, making the radiation homogeneous throughout the tumor mass. From ten to fifty of these needles are often placed in the breast or larynx or any accessible part of the body in which the tumor is located.

In order to make a full 100 percent of radiation at a depth of 10 cm., the addition of radium to heavy x-ray radiation is necessary. Only about 85 percent can be applied at this depth by the

heavy x-ray radiation alone. It is true that this 85 percent is enough to destroy 10 percent of malignancies, which is rather a desirable showing. My point is that the combined method using both x-ray and radium will increase this percentage of cures materially.

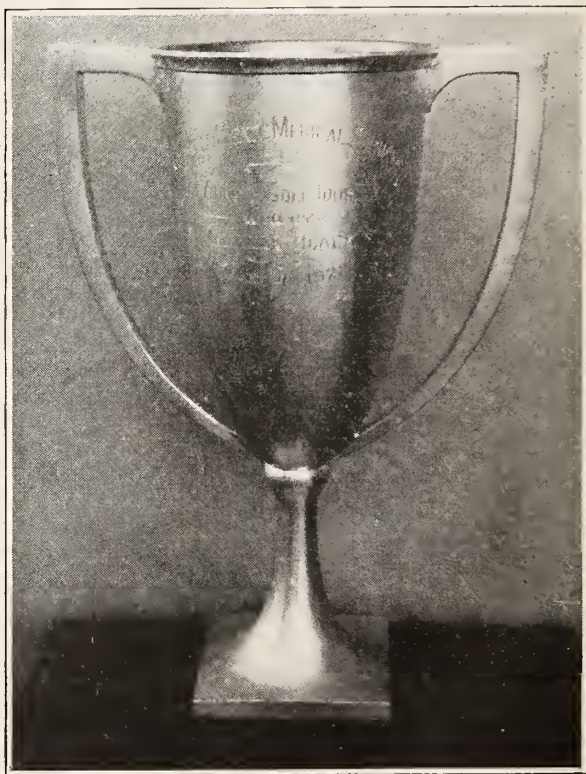
I think Dr. Wasson has presented an excellent paper and we are indebted to him for it.

Dr. Wasson (closing): I do not feel that I should take the time any further except in the discussion of radium, as it would lead us too far afield. I do wish to let the profession know a little bit more about radium. Doctor Deaver threw quite a bomb-shell into the medical world by his remarks, and there is quite a tendency at the present time to have a reaction against radium, and I think we can safeguard that reaction by a proper knowledge of the subject. I again repeat that it is one of the greatest aids we have today in the treatment of disease, but we cannot get results in the ordinary deep-seated lesions by radium alone. I wish to call Dr. Brandenburg's attention to the fact that if he used a needle of five or ten milligrams and nothing but a single silver filter, there will be destruction of tissue a few millimeters distant; whereas a couple of centimeters from it there will be practically nothing. The principle is the same with the radium tube. It is for that reason that we cure the disease on the surface, while deeper in the cancer continues to grow. We may then go back to a certain elementary principle, that is if we cannot remove the whole disease we would better leave the disease alone. I thank you.

Help make the new health journal go by subscribing yourself. See editorial this issue.

ANNUAL GOLF TOURNAMENT PROPOSED.

This cup was presented by the Committee on Arrangements as a golf trophy at the last meeting of the State Society at Colorado Springs. It



has been suggested that the custom be continued every year. It might be a good idea to adopt the plan of the American Golfing Association, and create a Colorado State Medical

Golfing Association with nominal dues, say two dollars a year; the fund thus obtained to be used in buying trophies each year, to be presented to winners of various contests. For example, one prize to the lowest score under handicap, to be kept by the winner; another prize to the highest score, to be kept by the winner; another series of prizes to be presented for a year to each of several section teams, namely: surgical, medical, eye, ear, nose and throat, and a team composed of all the other specialties; the name of the winner to be placed on the trophy each year. When one man has won it three times it becomes his property. The details of such an organization could be worked out, and since golf courses are to be found wherever our state society meets, the annual golf contest would add another interest to our otherwise scientific program.

M. B.

MINUTES OF THE FIFTY-SECOND ANNUAL SESSION OF THE COLORADO STATE MEDICAL SOCIETY, HELD AT COLORADO SPRINGS, COLO., OCTOBER 3, 4, AND 5, 1922.

(Papers and discussions which formed the scientific program of this session will appear in Colorado Medicine in succeeding issues of 1922-1923.)

October 3—First Day—Morning Meeting.

The Society was called to order at 8:30 o'clock a. m. by the president, H. A. Smith.

The president opened the meeting by remarks in which he thanked the officers and delegates for support given him during the year, and expressed his appreciation of the honor conferred upon him. The president-elect, J. Crum Epler, was then escorted to the chair to serve as president for the ensuing year.

The president proceeded to take up the scientific work of the Society by first reviewing the rules governing procedure.

The first paper on the program was then called for.

Minnie C. T. Love, Denver, read a paper entitled "Report of Three Years of Public Health Work of the Denver Venereal Disease Clinic, Women's Division". The paper was discussed by F. P. Gengenbach, E. L. Timmons, Tracy R. Love, H. A. Smith, W. W. Yates, H. G. Wetherill and by Minnie C. T. Love in closing.

A proposal of H. G. Wetherill that the Society go on record as opposed to the views expressed by H. A. Smith in his discussion was declared out of order by the president and a motion to refer such a proposal to the House of Delegates was not entertained on the ground that it could be brought up as new business in the House of Delegates and was out of order in the general meeting.

Elmer L. Timmons of Colorado Springs then read a paper on "Some Observations on Causes and Prevention of Rickets", which was discussed by F. P. Gengenbach, J. H. Woodbridge, G. M. Blickensderfer, Minnie C. T. Love, E. Friedman, Edward Jackson, J. W. Amessee and by Dr. Timmons in closing.

Roy P. Forbes of Denver then read a paper entitled "Congenital Malaria With Report of a Case in Colorado". It was discussed by J. L. Schwer, L. W. Bortree, J. W. Amessee and by Dr. Forbes in closing.

John L. Schwer of Pueblo then read a paper on "Nephritis in Children", which was discussed by F. P. Gengenbach, R. H. Finney, A. S. Tausig, Tracy Love, W. M. Spitzer, O. S. Fowler and by Dr. Schwer in closing.

The next two papers on the program, "Occurrence, Diagnosis and Non-Surgical Treatment of Congenital Stenosis of the Pylorus", by J. W. Amessee, Denver, and "The Surgical Treatment of Congenital Hypertrophic Pyloric Stenosis", by George B. Packard, Jr., Denver, were read by the authors and discussed jointly by the following members: E. L. Timmons, Leonard Freeman, W. W. Grant, F. B. Stephenson, J. N. Hall, H. C. Moses, F. P. Gengenbach and by Drs. Amessee and Packard in closing.

George M. Myers of Pueblo then read a paper on "The Diagnosis of Surgical Kidney Lesions". The paper was discussed by R. G. Smith, W. M. Spitzer, Oliver Lyons, J. B. Davis, Philip Hillkowitz and by Dr. Myers in closing.

William M. Spitzer, Denver, then read a paper entitled "Suprapubic Prostatectomy in Two Stages; the Proper Application and the Fallacy Thereof", following which Oliver Lyons of Denver presented his paper on "One Hundred Cases of Prostatectomy With a Mortality of One Percent". With the consent of the authors, the papers by Dr. Spitzer and Dr. Lyons were discussed jointly, the following members taking part in the discussion: J. B. Davis, Charles A. Powers, O. S. Fowler, G. M. Myers and, in closing, Drs. Spitzer and Lyons.

Dr. Charles A. Powers, president of the American Society for the Control of Cancer, then delivered an extemporaneous address on "Progress in Cancer Education", which was not discussed.

First Day—Evening Meeting.

The Society was called to order promptly at 8 o'clock p. m. in open meeting, there being many ladies present. The president's address was then delivered by Crum Epler, the subject being "Practice by Association". Following the presidential address J. N. Hall, Denver, gave a special address entitled "Our Lessening Morbidity From Chronic Digestive Diseases".

In obedience to instructions of the House of Delegates, the secretary then read the annual report of the Committee on Medical Education,* upon which the following resolution was introduced and adopted:

Resolution Regarding Admission of Students to State Medical School.

Whereas, It appears probable that for some years to come the applicants for enrollment at the University of Colorado School of Medicine will naturally exceed the capacity of the school; and,

Whereas, It is desirable that a very small proportion of students from out of the state be

*See minutes of House of Delegates, November issue.—Ed.

enrolled, thereby providing for students who must live here for health reasons; and,

Whereas, It is desirable that in case of superfluous applications the successful candidates be chosen on the basis of previously demonstrated ability and promise in order to recruit the best students for the medical profession; be it

Resolved, That the Colorado State Medical Society express its approval of the policy of the University of Colorado in thus admitting a limited number of non-resident students and in determining admission of students on a basis of demonstrated fitness.

October 4—Second Day—Morning Meeting.

The Society reconvened at 8:30 o'clock a. m. and the scientific program was continued.

W. A. Kickland of Fort Collins read a paper, "A Report of Six Cases of Acute Perforation in Chronic Ulcer of the Duodenum". The paper was discussed by W. T. H. Baker, Leonard Freeman, C. F. Andrew, C. E. Tennant, O. M. Gilbert, W. W. Grant, L. J. Weldon and by Dr. Kickland in closing.

The president at this point interrupted the scientific program to introduce Mr. R. H. Davis, who came as a representative of the National Wholesale Druggists' Association, then in session at Colorado Springs, to inform the Society that the Druggists' Association was prepared to lend its efforts in opposing the antivivisection bill and to pass such a resolution to that effect as the Colorado State Medical Society might recommend. After favorable discussion and expressions of appreciation it was moved by H. G. Wetherill that a committee be appointed to draft a resolution for presentation to the National Wholesale Druggists' Association. The motion being carried, Drs. H. G. Wetherill, C. S. Bluemel and W. F. Singer were appointed as a committee with power to act.

George W. Miel of Denver then read a paper on "Fractures Involving Joints—Question of Movement". The paper was discussed by J. B. Hartwell, C. E. Tennant, H. G. Wetherill, L. J. Weldon and by Dr. Miel in closing.

Edward Jackson then requested the floor and presented a verbal account of the work of the Jubilee Volume Committee, describing the volume in detail and soliciting subscription by the members.

Lewis I. Miller, Denver, read a paper entitled "Intestinal Obstruction; Some Interesting Intra-abdominal Lesions, With Report of Cases". The paper was discussed by F. M. Heller, J. N. Hall, H. W. Stuver, F. N. Cochems and by Dr. Miller in closing.

C. E. Tennant, Denver, then read a paper on "Posture and Abdominal Pain Simulating Symptoms Associated With Chronic Visceral Pathology". It was discussed by G. H. Curfman, Leonard Freeman, Edward Delehanty, Tracy Love, C. M. Spicer and by Dr. Tennant in closing.

The following resolution was then submitted by the committee appointed earlier for the purpose of drafting a resolution to be addressed to the National Wholesale Druggists' Association:

Resolution Addressed to National Wholesale Druggists' Association.

Whereas, Animal experimentation is indispensable to the enforcement of the Pure Food and Drugs Act; and,

Whereas, Ninety percent of the animal experiments conducted by the U. S. Government have for their purpose the enforcement of the act; and,

Whereas, An antivivisection bill has been initiated in Colorado that would make animal experiments illegal, and would thus threaten the health and welfare of the community; therefore, be it

Resolved, That the Colorado State Medical Society bring these facts to the attention of the National Wholesale Druggists' Association, and urge upon them the importance of their co-operation in defeating the antivivisection bill.

On motion made and seconded the resolution was adopted and the committee requested to present it in person to the Druggists' Association.

J. Arthur Buchanan, Pueblo, then read a paper entitled "A Clinical Classification of Goitre," which was discussed by Edward Lazell, Philip Hillkowitz, J. F. McConnell and by Dr. Buchanan in closing.

Leonard Freeman, Denver, then read a paper on "A Method for Increasing the Simplicity and Safety of Gastrectomy, Gastroenterostomy and Other Similar Operations". The paper was discussed by H. A. Black and by Dr. Freeman in closing.

Frank R. Spencer, Boulder, read a paper on "The Importance of Headaches in General Medicine Originating From Eye, Ear, Nose and Throat Diseases", which was discussed by F. L. Dennis, J. J. Pattee, G. A. Moleen, Robert Levy, Melville Black, William H. Crisp, F. A. Burton, H. A. Smith, D. H. Montgomery and by Dr. Spencer in closing.

William H. Crisp, Denver, read a paper entitled "First Care of Eye Accidents by the General Practitioner". The paper was discussed by J. W. Thompson, Edward Jackson, J. A. McCaw and by Dr. Crisp in closing.

W. W. Wasson of Denver then read a paper on "The Treatment of Malignancies by Radiation". The paper was discussed by Clay Giffin, H. P. Brandenburg and by Dr. Wasson in closing.

Second Day—Evening Meeting.

The meeting was thrown open to the public, and the assembly hall was filled to capacity.

The program began with an address on "The Use of X-Rays in the Treatment of Deep-Seated Lesions", by Dr. Benjamin H. Orndoff of Chicago, guest of honor. Following this the meeting was devoted to a discussion of the antivivisection movement in the state in the shape of an initiated bill to prohibit animal experimentation. The discussion was opened by Dr. Henry Sewall of Denver. In the course of the discussion the following resolution was proposed by Melville Black, seconded by Edward Jackson, and unanimously adopted:

Resolution of the Colorado State Medical Society on the Antivivisection Bill (No. 5).

Whereas, By use of the initiative and referendum certain persons filed a bill for the voters of Colorado to vote upon at the November election entitled: "An Act to Prohibit Injurious, Dangerous or Painful Experimental Operations or Administrations Upon Human Beings or Dumb Animals Except to Relieve or Cure Them"; and,

Whereas, This bill is so worded as to deceive the casual reader in the belief that it purposes only the protection of helpless animals against infamous cruelties while, on the contrary, its passage would make illegal those measures through which have been discovered the most important procedures of modern medicine and surgery which have already resulted in the saving of countless lives both of human beings and animals; and,

Whereas, The diagnosis of certain prevalent and fatal diseases is impossible without the sacrifice of animals, which diseases can be successfully treated when so diagnosed; and,

Whereas, All prospect of future advancement in the knowledge and cure of many obscure diseases would be made impossible through the passage of this death bill; and,

Whereas, We believe that the life of a human being is more precious than that of a guinea pig or a rat; and,

Whereas, Comparatively few experiments involve induction of severe pain which, when likely to occur, is avoided by the use of anesthetics; and,

Whereas, The proponents of this bill are anonymous and venture neither to disclose their names nor habitation, slinking in obscurity becoming their malevolence of purpose; therefore, be it

Resolved, By the Colorado State Medical Society, in convention assembled, that we denounce this antivivisection bill as a death bill, whose passage would progressively raise the mortality rates both of men and animals and incalculably increase the sufferings of all living beings.

A motion was then made by Edward Jackson that the members of the Colorado State Medical Society join and urge their friends to join the Colorado Association for the Protection of Public Health. The motion was seconded and unanimously carried.

October 5—Third Day.

The Society reconvened at 8:30 o'clock a. m., and the scientific program was continued.

Leo V. Tepley of Denver read a paper on "Dementia Praecox and the General Practitioner". The paper was discussed by Cyrus L. Pershing, E. T. Boyd, H. G. Brainerd (Los Angeles), O. M. Gilbert and by Dr. Tepley in closing.

At this time President Epler extended to President-elect Black an invitation to address the Society, upon which Dr. Black extemporaneously reviewed his connection with the Society which began thirty-one years ago, and expressed his interest in organized medicine and especially the Colorado State Medical Society. After com-

menting upon the rapid growth of the Society during the past few years he made a plea for a continued increase with twenty-five percent growth in the next five years as a goal to be reached. He especially called attention to the large number of eligible physicians in the state that are not now identified with the Society, and urged that individual members use their efforts to have them affiliated with us. He especially urged the advantages of attending the annual meetings and tried to impress upon all the value in fellowship and scientific improvement which could in that way be realized. He then pledged himself to do everything that he could to bring about his ambitions for the State Society during his incumbency.

In the absence of Saling Simon, Denver, his paper on "Observations on Certain Experiments With Inhalations and Injections of Various Substances Into the Respiratory Tract" was read by Harold Freed. The paper was discussed by J. B. Crouch, Charles Ryder, O. M. Gilbert and H. J. Corper.

Samuel Sweezy, Denver, then read a paper on "Observations on Complete Immobilization in Pulmonary Tuberculosis With Report of Cases". The paper was discussed by S. W. Schaefer, I. D. Bronfin and by Dr. Sweezy in closing.

A. J. Markley, Denver, read a paper on "Clinical Types of Tuberculosis of the Skin, With Lantern Demonstration", which was discussed by G. P. Lingenfelter, Harold Freed, I. D. Bronfin, F. A. Burton and by Dr. Markley in closing.

At this point Dr. W. N. Wardlaw of Childress, Texas, was introduced as a fraternal delegate from the State Medical Association of Texas, who in a short address extended the greetings of that association to the Colorado State Medical Society.

The Secretary then recapitulated for the Society the minutes of the various meetings of the House of Delegates.*

In lieu of a detailed report of the Committee on Necrology, the chairman of that committee, W. F. Singer, gave a verbal report, explaining that it would be the attempt of the committee to gather the data on members who have died during the year and submit it for proper record at a later date.

The next paper on the program was "Diphtheroid Infection of Nose, Throat and Lungs", by E. D. Downing and C. E. Harris of Woodman. The paper was discussed by H. J. Corper, William H. Geistweit and Tracy Love.

A. G. Ellis of Colorado Springs then read a paper on "Pathological and Clinical Medicine". The paper was discussed by O. M. Gilbert, C. N. Meader, W. W. Yates, R. H. Finney, Philip Hillkowitz, Edward Jackson and by Dr. Ellis in closing.

Clough Turrill Burnett, Denver, read a paper entitled "The Electrocardiograph in Diagnosis With Projection Slide Demonstration", which was discussed by J. Arthur Buchanan.

C. D. Spivak of Denver then read a paper en-

*Minutes in full of the House of Delegates appear in the November, 1922, issue of Colorado Medicine.

titled "The Mortality of the Jews in Denver, a Preliminary Report on Group Vital Statistics". The paper was discussed by President Epler, O. R. Gillett, H. J. Corper, Philip Hillkowitz and by Dr. Spivak in closing.

The president then announced that the scientific program had been completed, and that suggestions from members for the good of scientific medicine or the organization would be in order.

C. D. Spivak, Denver, then called attention to the difficulty encountered by the Committee on Necrology in securing data regarding the lives of deceased members and expressed his feeling that a system of records of members should be installed. Dr. Epler, in agreement with the sug-

gestion, stated that such a record system could appropriately be kept in the State Medical Library at Denver.

William H. Crisp then made a motion that the president appoint a committee of three to submit suggestions at the next annual meeting for some approved system of records of the details of the careers of members of the Society.

The motion, being seconded and put, was carried, the president announcing that he would appoint such a committee later, after conference with others.

The meeting then adjourned sine die, terminating the fifty-second annual session.

F. B. STEPHENSON, Secretary.

List of Members of the Colorado State Medical Society *December 1st, 1922*

HONORARY MEMBERS.

Adami, J. G., M.D.....	Montreal, Canada
Dodge, H. O., M.D.....	Boulder, Colo.
*Elsner, John, M.D.....	Denver, Colo.
Farrand, Livingston, M.D.....	Ithaca, N. Y.
Hawkins, T. H., M.D.....	Plainfield, N. J.
*Lawney, Eleanor, M.D.....	Denver, Colo.
Ramaley, Francis	Boulder, Colo.
Schneider, E. C., M.D.....	Colorado Springs, Colo.
Scott, I. D., D.D.S.....	Boulder, Colo.

ACTIVE MEMBERS.

Name.	Postoffice.	Constituent Society.
Abelio, J. M.....	Denver	Denver
Aberg, A.	Alamosa.....	San Luis Valley
Abrahams, H. E. ..	Trinidad	Las Animas
Adams, O. F.	Trinidad	Las Animas
Adams, W. A.	Denver	Denver
Adkinson, R. C.....	Florence	Fremont
Agan, J. N.	Pierce	Weld
Albi, Rudolph	Denver	Denver
Alcorn, F. A.	Haxtum	Northeast
Alldredge, H. H....	Englewood	Arapahoe
Allen, H. J.	Denver	Denver
Allen, J. H.	Denver	Denver
Allen, K. D. A....	Denver	Denver
Allen, L. R.	Colorado Springs....	El Paso
Allen, Robert S....	Denver	Denver
Ames, Matthew H..	Denver	Denver
Amesse, John W....	Denver	Denver
Anderson, A.	Ault	Weld
Anderson, C. W. ...	Denver	Denver
Anderson, Geo. M. .	Casper, Wyo.	Denver
Anderson, T.	Denver	Denver
Andrew, C. F.	Longmont	Boulder
Andrew, John.....	Longmont	Boulder
Andrews, Geo. D. ..	Walsenburg	Huerfano
Apperson, Ed. L. ..	Denver	Denver
Argall, Albert J....	Denver	Denver
Arndt, Rudolph W..	Denver	Denver
Arneill, James R....	Denver	Denver
Arnold, C. R.	Colorado Springs....	El Paso
Arnold, W. W.	Colorado Springs....	El Paso
Ashbaugh, G. A. ...	Rocky Ford	Otero
Ashbaugh, R. A....	Aguilar	Morgan
Ashley, G. H.	Denver	Denver
*Asquith, A. C.....	Denver	Denver
Atcheson, Geo.	Denver	Denver
Atkinson, T. E.	Greeley	Weld
Attwood, A. D.	Denver	Denver
Aufmwasser, H. W..	Denver	Denver
Aust, T. H.	Cedar Edge	Delta

Name.	Postoffice.	Constituent Society.
Averill, H. W.	Evans	Weld
Bacon, H. E.	Fort Collins	Larimer
Bagot, W. S.	Denver	Denver
Bailey, M. M.	Loveland	Larimer
Baird, Wm. J.	Boulder	Boulder
Baker, Andrew J....	Florence	Fremont
Baker, Madeleine M..	Denver	Denver
Baker, R. C.	Denver	Denver
Baker, W. H.	Pueblo	Pueblo
Baker, W. T. H....	Pueblo	Pueblo
Bancroft, G. W.	Colorado Springs....	El Paso
Bane, Wm. C.	Denver	Denver
Bane, W. M.	Denver	Denver
Barber, John R....	Stevenson, Wash....	Boulder
Barney, J. M.	Denver	Denver
Barney, N. E.	Sterling	Northeast
*Barrett, G. W....	Denver	Northeast
Bartz, L. E.	Windsor	Weld
Baskin, M. J.	Alliance, Neb.....	Denver
Bast, Lee	Delta	Delta
Bates, Mary E.	Denver	Denver
Baum, Harry L....	Denver	Denver
Beachley, John V....	Stratton	Kit Carson
Beaghtler, Amos L..	Denver	Denver
Beall, Kate W....	Denver	Denver
Beall, Walter C....	Denver	Denver
Beatty, J. T.	Denver	Denver
Beck, L. H.	Manitou	El Paso
Beck, N. C.	Denver	Denver
Beere, Rose Kidd ..	Denver	Denver
Beers, Ida V.	Denver	Denver
Beggs, Wm. H.	Denver	Denver
Bell, Samuel H.	Montrose	Montrose
Bellrose, N. W....	Eaton	Weld
Bennett, E. C.	Boulder	Boulder
Bergen, Frank L....	Burlington	Kit Carson
Berlin, Wm. C. K....	Denver	Denver
Beshoar, Ben.....	Trinidad	Las Animas
Beyer, T. E.	Denver	Denver
Bigelow, May T....	Denver	Denver
Biles, J. A.	Del Norte...San Luis Valley	
Ringham, W. J.	Denver	Denver
Birkenmayer, W. C..	Denver	Denver
Rixler, C. W.	Erie	Boulder
Black, H. A.	Pueblo	Pueblo
*Black, J. A.	Pueblo	Pueblo
Black, Melville....	Denver	Denver
Blackerby, R. E....	Branson	Las Animas
Blackman, A. A....	Colorado Springs....	El Paso
Blackmer, F. J....	Steamboat Sp....	Northwestern
Blackwood, H. A....	Weldona	Morgan
Blank, Henry	Denver	Denver

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Blickensderfer, G. M.	Denver	Denver	Cecchini, A. S.	Denver	Denver
Block, Leon	Denver	Denver	Chamberlain, R. S.	Denver	Denver
Blosser, J. R.	Denver	Denver	Chambers, J. C.	La Jara	San Luis Valley
Blotz, B. B.	Rocky Ford	Otero	Champlin, H. H.	Denver	Denver
Blotz, B. F.	Rocky Ford	Otero	Chandler, G. B.	Calhan	El Paso
Bluemel, C. S.	Denver	Denver	Chapman, S. G.	Colorado Springs	El Paso
Blumberg, A. M.	Denver	Denver	Chapman W. S.	Walsenburg	Huerfano
Bolton, L. C.	Cedar Edge	Delta	Charles, Robert L.	Denver	Denver
Bonesteel, A. E.	Denver	Denver	Chase, A. M.	Denver	Denver
Bonney, S. G.	Denver	Denver	Chase, John S.	Denver	Denver
Booth, C. O.	Pueblo	Northeast	Cheley, G. E.	Denver	Denver
Bordner, Alta E.	Pueblo	Pueblo	Chesmore, H. P.	Pyrolite	El Paso
Bortree, L. W.	Colorado Springs	El Paso	Childs, S. B.	Denver	Denver
Bouslog, J. S.	Denver	Denver	Chipman, J. C.	Sterling	Northeast
Boutros, Amin	Denver	Denver	Chisholm, A. J.	Denver	Denver
Boyd, E. T.	Denver	Denver	Christopher, D. I.	Colorado Springs	El Paso
Boyd, Geo. A.	Colorado Springs	El Paso	*Church, W. F.	Greeley	Weld
Braden, J. M.	Lafayette	Boulder	Clagett, O. F.	Carbondale	Garfield
Brady, E. J.	Colorado Springs	El Paso	Clark, I. J.	Fort Morgan	Morgan
Bramley, J. R.	Denver	Denver	Clarke, Edwin A.	Akron	Unattached
Brandenburg, H. P.	Denver	Denver	Clarke, E. R.	Fort Morgan	Morgan
Brandon, E. Agnes	Denver	Denver	Clarke, L. G.	Glenwood Springs	Garfield
Brethouwer, C. G.	Montrose	Montrose	Cleland, W. S.	Delta	Delta
Broeker, C. G.	Denver	Denver	Cleveland, A. L.	Sciotti, Ill.	Arapahoe
Broman, O. F.	Greeley	Weld	Clow, J. B.	Denver	Denver
Bronfin, Isadore D.	Edgewater	Denver	Cochems, F. N.	Salida	Lake
Bronson, D. A.	Telluride	Montrose	Cochran, J. D.	Sterling	Northeast
Brown, E. H.	Pueblo	Pueblo	Cohen, H. M.	Denver	Denver
Brown, Geo. E.	Denver	Denver	Colby, H. E.	Stonington	Prowers
Brown, H. C.	Denver	Denver	Cole, J. H.	Oak Creek	Northwestern
Brown, J. H.	Colorado Springs	El Paso	Coleman, O. E.	Denver	Denver
Brown, L. G.	Colorado Springs	El Paso	Collier, W. B.	Littleton	Arapahoe
Brown, M. D.	Denver	Denver	Collins, E. W.	Denver	Denver
Brown, Thad C.	Ft. Collins	Larimer	Conant, E. F.	Denver	Denver
Brown, Wm. S.	Tabernash	Denver	Condon, C. E.	Breckenridge	Lake
Brownell, W. F.	Fort Collins	Larimer	Cone, E. E.	Pueblo	Pueblo
Brunk, A. S.	La Junta	Otero	Connor, P. J.	Denver	Denver
Bryson, E. H.	Grand Junction	Mesa	Conway, L. A.	Colorado Springs	El Paso
Buchtel, F. C.	Denver	Denver	Cook, D. M.	Palisade	Northeast
Buck, W. E.	Pueblo	Pueblo	Cook, L. C.	Golden	Denver
Buckley, S. B.	Denver	Denver	Cook, Robert C.	Denver	Denver
Buchanan, J. Arthur	Pueblo	Pueblo	Cooper, C. E.	Denver	Denver
Bull, H. R.	Grand Junction	Mesa	Cooper, Henry S.	Denver	Denver
Bundsen, C. A.	Denver	Denver	Cooper, Horace S.	Denver	Denver
Burdick, W. T.	Denver	Denver	Coover, D. H.	Denver	Denver
Burgin, Chas. H.	Delta	Delta	Copeland, W. C.	Hotchkiss	Delta
Burket, R. S.	Denver	Denver	Corlett, T. G.	Colorado Springs	El Paso
Burkhard, Ed. D.	Pueblo	Pueblo	Corper, H. J.	Denver	Denver
Burnett, A. L.	Silverton	San Juan	Corwin, R. W.	Pueblo	Pueblo
Burnett, C. T.	Denver	Denver	Costigan, Daniel D.	Trinidad	Las Animas
Burnett, N. M.	Lamar	Prowers	Craghead, W. S.	Denver	Denver
Burns, T. M.	Denver	Denver	Craig, A. C.	Denver	Denver
Burton, Frank A.	Denver	Denver	Craig, H. F.	Denver	Denver
Bush, C. E.	Denver	Denver	Craig, Wm. B.	Denver	Denver
Bush, J. H.	Boulder	Northeast	Craighead, J. W.	Pueblo	Pueblo
Caldwell, C. N.	Pueblo	Pueblo	Craney, J. P.	Denver	Denver
Calhoun, H. O.	Denver	Denver	Crawley, Z. T.	Holyoke	Northeast
Calkins, H. A.	Leadville	Lake	Creighton, B. B.	Manitou	El Paso
Calonge, G. E.	La Junta	Otero	Crews, Geo. B.	Denver	Denver
Campbell, J.	Boulder	Boulder	Crisp, J. D.	Denver	Denver
Campbell, W. A.	Colorado Springs	El Paso	Crisp, Wm. H.	Denver	Denver
Campbell, W. B.	Chicago, Ill.	Pueblo	Crook, W. W.	Glenwood Springs	Garfield
Canby, H. S.	Denver	Denver	Crosby, L. G.	Denver	Denver
Carey, J. D.	Fort Collins	Larimer	Crouch, J. B.	Colorado Springs	El Paso
Carmichael, Paul W.	Sopris	Las Animas	Crozier, R. B.	Rye	Pueblo
Carmody, T. E.	Denver	Denver	Cryer, W. H.	Colorado Springs	El Paso
Carpenter, F. H.	Denver	Denver	Crysler, W. C.	Littleton	Arapahoe
Cary, F. H.	Denver	Denver	Culp, J. C.	Springfield	Prowers
Cary, G. C.	Grand Junction	Mesa	Cummings, G. D.	Florence	Fremont
Casburn, F. E.	Lamar	Prowers	Cunningham, A. A.	Denver	Denver
Case, A. G.	Denver	Denver	Cunningham, T. D.	Denver	Denver
Cassel, O. M.	Burlington	Kit Carson	Curfman, G. H.	Salida	Chaffee
Catron, H. B.	Englewood	Arapahoe	Curry, E. M.	Hastings	Las Animas
Cattermole, Geo. H.	Boulder	Boulder	Curtis, H. B.	Denver	Denver
Catterson, A. D.	Englewood	Arapahoe	Dally, H. H.	Tollerburg	Las Animas
Cavey, J. E.	Stratton	Kit Carson	Danahey, T. J.	Denver	Denver

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Daniel, J. H.	Sterling	Northeast	Fee, L. W.	Wiley	Prowers
Darling, J. C.	Durango	San Juan	Fenton, W. E.	Rocky Ford	Otero
Darrow, C. H.	Denver	Denver	Fezer, Florence	Greeley	Weld
Davenport, Robt. G.	Denver	Denver	Filmer, B. A.	Denver	Denver
Davies, John D.	Alamosa	San Luis Valley	Findley, Robert H.	Somerset	Delta
Davis, A. C.	Lamar	Prowers	Finney, H. S.	Denver	Denver
Davis, J. B.	Denver	Denver	Finney, R. H.	Pueblo	Pueblo
Davis, J. W.	Aguilar	Las Animas	Finnoff, Wm. C.	Denver	Denver
Davis, T. A.	Portland	Fremont	Fischer, V. B.	Boulder	Boulder
Davis, R. E.	Pueblo	Pueblo	Fisher, Carl D.	Denver	Denver
Davis, Wm. H.	Denver	Denver	Fleming, V. P.	Denver	Denver
Davlin, C. A.	Alamosa	San Luis Valley	Foley, John Wm.	Denver	Denver
Day, H. S.	Grand Junction	Mesa	Forbes, R. P.	Denver	Denver
Day, W. A.	Delta	Delta	Ford, G. R.	Trinidad	Las Animas
Dean, E. F.	Denver	Denver	Ford, J. E.	Grand Junction	Mesa
DeBeque, W. A. E.	DeBeque	Denver	Forney, F. A.	Woodman	El Paso
de Bode, Paul	Salt Lake City, Ut.	Morgan	Forster, A. M.	Colorado Springs	El Paso
Delehanty, Ed.	Denver	Denver	Foster, J. M.	Denver	Denver
Denney, R. H.	Elbert	Denver	Fowler, Harmon L.	Denver	Denver
Dennis, E. G.	Olathe	Montrose	Fowler, Ora S.	Denver	Denver
Dennis, F. L.	Colorado Springs	El Paso	Fox, M. R.	Sterling	Northeast
Dennis, W. S.	Denver	Denver	Frank, Lorenz W.	Denver	Denver
DeSobe, J. O.	Denver	Denver	Frank, Robert T.	Denver	Denver
Dibble, R. B.	Pueblo	Pueblo	Frankle, B. B.	Denver	Denver
Didrickson, F. G.	Montrose	Montrose	Fraser, M. Ethel V.	Denver	Denver
Dodge, H. C.	Pueblo	Boulder	Fraser, R. W.	Denver	Denver
Dorset, B. C.	Denver	Denver	Freeland, H. J.	Denver	Denver
Douglass, A. L.	Denver	Denver	Freeman, Leonard	Denver	Denver
Downing, E. D.	Woodman	El Paso	Freudenthal, A.	Trinidad	Las Animas
Drinkwater, R. L.	Denver	Denver	Friedman, Emanuel	Denver	Denver
Driscoll, W. E.	Pagoda	Northwestern	*Friend, F. Milton	Lamar	Prowers
Drisdale, W. E.	Chandler	Fremont	Fugard, A. L.	Santa Monica, Calif.	Pueblo
Driver, G. S.	Ignacio	San Juan	Fuller, C. R.	Salida	Chaffee
Drown, L. M.	Denver	Denver	Gale, M. Jean	Denver	Denver
Dryer, Ernest	Colorado Springs	El Paso	Gallagher, T. J.	Denver	Denver
Duncan, O. A.	Aguilar	Las Animas	Gardiner, C. F.	Colorado Springs	El Paso
Dunkle, Frank	Fairplay	Weld	Garvin, D. Edson	Golden	Denver
Dunkle, R. C.	Cokedale	Las Animas	Garwood, H. G.	Denver	Denver
Dunklee, Geo. K.	Denver	Denver	Gasser, W. P.	Loveland	Larimer
Dunlop, Josephine N.	Pueblo	Pueblo	Gauss, Harry	Denver	Denver
Dutton, F. G.	Julesburg	Northeast	Geistweit, Wm. H.	Denver	Denver
Dworzak, Z. von	Denver	Denver	Geßen, Johanna	Denver	Denver
Dyde, C. B.	Greeley	Weld	Gengenbach, F. P.	Denver	Denver
Dymenberg, N.	Minturn	Denver	George, McLeod M.	Denver	Denver
Eakins, C. F.	Brush	Morgan	Gibson, J. D.	Denver	Denver
Earley, A. H.	Denver	Denver	Giese, C. O.	Colorado Springs	El Paso
Edson, C. E.	Denver	Denver	Giffin, Clay E.	Boulder	Boulder
Edwards, E. G.	Denver	Otero	Giffin, L. M.	Boulder	Boulder
Edwards, G. M.	Denver	Denver	Gilbert, G. B.	Colorado Springs	El Paso
Eigler, C. O.	Denver	Denver	Gilbert, O. M.	Boulder	Boulder
Elder, C. S.	Denver	Denver	Gillaspie, Carbon	Boulder	Boulder
Elliot, H. R.	Denver	Denver	Gillett, O. R.	Colorado Springs	El Paso
Elliott, C. E.	Victor	Teller	Gilmore, G. B.	Colorado Springs	El Paso
Elliott, C. H.	Denver	Denver	Gjellum, A. B.	Del Norte	San Luis Valley
Elliott, J. T.	Denver	Denver	Gleason, R. L.	Fort Collins	Larimer
Elmore, Ralph D.	Eastlake	Denver	Goldhammer, Sam'l.	Denver	Denver
Emery, H. G.	Bennett	Denver	Good, A. H.	Gunnison	Montrose
Engelson, C. J.	Brookings, S. D.	Denver	Gooding, B. A.	Fort Collins	Larimer
Enos, Clinton	Denver	Denver	Goodson, H. C.	Colorado Springs	El Paso
Epler, Crum	Pueblo	Pueblo	Gorsuch, John C.	Denver	Denver
Erich, A. F.	Delta	Delta	Gothard, J. W.	Avondale	Pueblo
Espey, J. G.	Trinidad	Las Animas	Gotthelf, I. L.	Saguache	San Luis Valley
Espey, J. R.	Trinidad	Las Animas	Gowen, C. R.	Denver	Denver
Evans, C. H.	Colorado Springs	El Paso	Graf, Carl H.	Boulder	Boulder
Evans, E. E.	Fort Morgan	Morgan	Graham, Chas. A.	Denver	Denver
Evans, F. J.	Denver	Denver	Graham, E. V.	Denver	Denver
Evans, L. P.	Morley	Las Animas	Graham, R. F.	Greeley	Weld
Evans, T. J.	Colorado Springs	El Paso	Grant, W. W.	Denver	Denver
Ewing, G. F.	Julesburg	Northeast	Grantham, O. A.	Littleton	Arapahoe
Eyerly, T. L.	Denver	Huerfano	Graves, C. H.	Cañon City	Fremont
Faber, Edwin G.	Denver	Denver	Graves, H. C.	Cañon City	Fremont
Fantz, T. S.	Denver	Denver	Green, H. A.	Boulder	Boulder
Farrington, F. H.	Boulder	Boulder	*Greene, J. L.	Eagle	Garfield
Farrington, Paul R.	Boulder	Boulder	Gregg, A. C.	Delagua	Las Animas
Farthing, C. H.	Meeker	Garfield	Greig, Wm.	Denver	Northeast
Faust, F. A.	Colorado Springs	El Paso	Greig, Wm. M.	Denver	Denver

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Groom, Robert.....	Boulder	Boulder	Hopkins, G. A.....	Glenwood Springs ..	Garfield
Grover, B. B.....	Colorado Springs....	El Paso	Hopkins, Guy H....	Pueblo	Pueblo
Guthrie, Alice B....	Denver	Denver	Hopkins, John R....	Denver	Denver
Guthrie, Ewing C....	Denver	Denver	Hopkins, T. M.....	Denver	Denver
Guthrie, J. F.....	Vineland	Pueblo	Horan, E. J.....	Glenwood Springs ..	Garfield
Gwinn, L. M.....	Fairplay	Chaffee	Horton, D. J.....	La Salle	Weld
Hadley, Edgar.....	Montrose	Montrose	Hotchkiss, Walter K.	Brighton	Denver
Hagerman, S. V....	Las Animas	Otero	Hotopp, T. M. H....	Pagosa Springs....	San Juan
Haggart, John.....	Durango	San Juan	Houf, W. H.....	Iliff	Northeast
Hall, A. Z.....	Eaton	Weld	Howard, C. J.....	Denver	Denver
Hall, H. E.....	La Junta	Otero	Howard, J. F.....	Denver	Denver
Hall, Josiah N....	Denver	Denver	Howard, T. Leon...	Denver	Denver
Halley, S. C.....	Fort Collins	Larimer	Howell, J. D.....	Berthoud	Larimer
Halley, W. H.....	Denver	Denver	Howell, Thos F....	Alamosa.....	San Luis Valley
Halsted, F. S.....	Denver	Denver	Howell, W. C.....	El Paso, Texas	El Paso
Hain, Judson B....	Denver	Denver	Hudson, R.....	Denver	Denver
Hammell, John P...	Denver	Denver	Huelsmann, L. C...	Colorado Springs....	El Paso
Haney, J. R.....	Colorado Springs....	El Paso	Hughes, T. A.....	Denver	Denver
Hanford, P. O.....	Colorado Springs....	El Paso	Hummel, E. P.....	Sterling	Northeast
Hanson, F. P.....	Gunnison	Fremont	Humphrys, Ethel D.	Denver	Denver
Hanson, K. K.....	Grand Junction	Mesa	Hunnicut, W. P....	Denver	Pueblo
Hardesty, W. B....	Berthoud	Larimer	Hutchinson, A. F...	Durango	San Juan
Hardy, J. O.....	Las Animas	Otero	Hutchinson, Wm. ...	Pueblo	Pueblo
Hargreaves, O. C...	Denver	Denver	Hutton, V. A.....	Florence	Fremont
Harlow, W. P.....	Boulder	Boulder	Inglis, John.....	Denver	Denver
Harmer, W. W.....	Greeley	Weld	Ingraham, C. B....	Denver	Denver
Harner, C. E.....	Denver	Denver	Irwin, Robert S....	Denver	Denver
Harris, Allen H....	Denver	Denver	Jackson, Edward...	Denver	Denver
Harris, C. E.....	Woodman	El Paso	Jackson, F. A.....	Salida	Chaffee
Harrison, Fleet H...	Gilman	Denver	Jaeger, Chas.....	Denver	Denver
Hart, J. F.....	Julesburg	Northeast	Jaeger, J. R.....	Denver	Denver
Hartwell, John B...	Colorado Springs....	El Paso	*James, T. L.....	Colorado Springs....	El Paso
Harvey, Horace G...	Denver	Denver	Jayne, W. A.....	Denver	Denver
Haskell, E. E.....	Windsor	Weld	Jeannotte, J. A....	Leadville	Lake
Hassenplug, G. K...	Denver	Denver	Jenkins, E. W....	Denver	Denver
Hassenplug, Wm. F.	Cripple Creek	Teller	Jernigan, V. J....	Longmont	Boulder
Hayes, A. I.....	Denver	Denver	John, Grant H....	Englewood	Arapahoe
Hayes, Richard	Pueblo	Pueblo	Johnson, E. E.....	Cortez	San Juan
Hays, W. E.....	Sterling	Northeast	Johnson, Margaret..	Boulder	Boulder
Hazelton, Wm. H...	Burlington	Kit Carson	Johnson, Ross W...	Denver	Denver
Hazlett, H. W.....	Paonia	Delta	Johnston, R. S....	La Junta	Otero
Hegner, C. F.....	Denver	Denver	Johnston, W. S....	Pueblo	Pueblo
Heimlick, A. F....	Grand Junction	Mesa	Jones, S. Fosdick..	Denver	Denver
Heller, Frederick M.	Pueblo	Pueblo	Jones, Wm. W....	Denver	Denver
Henderson, H. S....	Grand Junction	Mesa	Joslyn, S. A.....	Loveland	Larimer
Henkel, F. W. E....	Rifle	San Juan	Katzman, Maurice..	Denver	Denver
Hepler, A. H.....	Newcastle	Garfield	Keep, Frank E....	Los Angeles, Calif...	Denver
Hepp, G. Brinton...	Denver	Denver	*Keese, W. H.....	Haxtum	Northeast
Hereford, J. H....	Colorado Springs....	El Paso	Keller, W. C.....	Genoa	Kit Carson
Herrick, J. C.....	Whipple Barracks, Ariz.	Denver	Kellogg, J. H.....	Sterling	Northeast
Herrman, L. L.....	Alamosa	San Luis Valley	Kelly, John P....	Golden	Denver
Herson, R. G.....	Denver	Otero	Kelsey, Otis H....	Denver	Denver
Hess, Wm. L.....	Denver	Denver	Kennedy, Arthur L.	Denver	Denver
Heusinkveld, Gerrit.	Denver	Denver	Kennedy, Geo. A...	Limon	Denver
Houston, H. H....	Boulder	Boulder	Kenney, F. W....	Denver	Denver
Hick, L. A.....	Delta	Delta	Kent, Wallace C...	Denver	Denver
Hickey, Clinton G...	Denver	Denver	Kerley, G. L.....	La Junta	Otero
Hickey, H. L.....	Denver	Denver	Kern, B. F.....	Platteville	Weld
Hickman, W. E....		Prowers	Kickland, W. A....	Fort Collins	Larimer
Higbee, O. F.....	Fowler	Otero	*King, D. M.....	Denver	Denver
Higgins, John W....	Denver	Denver	King, W. W.....	Cripple Creek	Teller
Hill, E. C.....	Denver	Denver	Kinney, J. E.....	Denver	Denver
Hill, H. C.....	Holyoke	Northeast	Kinzie, J. W.....	Haxtum	Northeast
Hill, W. K., Jr....	Colorado Springs....	El Paso	Kleiner, Moses....	Denver	Denver
*Hill-Crawford, J. T.	Los Angeles	Denver	Knisely, A. L.....	Boulder	Boulder
Hills, W. C.....	Stratton	Kit Carson	Knoch, N. H.....	Denver	Denver
Hillkowitz, Philip...	Denver	Denver	Knott, Isaiah.....	Montrose	Montrose
Hillyer, W. E.....	Boulder	Boulder	Knowles, E. W....	Greeley	Weld
Hinshaw, J. D.....	Cañon City	Fremont	Knowles, T. R....	Colorado Springs....	El Paso
Hoag, D. E.....	Pueblo	Pueblo	Knuckey, C. T....	Lamar	Prowers
Hoagland, H. W....	Calif.....	El Paso	Kortwright, S. E...	Leadville	Lake
Hodnett, W. P.....	Denver	Denver	Kracow, A. R.....	Denver	Denver
Holden, G. Walter...	Denver	Denver	Kretschmer, O. S...	Denver	Denver
Holland, A. C.....	Colorado Springs....	El Paso	Krohn, H. N.....	Denver	Denver
Holmes, R. E.....	Cañon City	Fremont	Krohn, M. J.....	Denver	Denver
			Kruse, May B.....	Denver	Denver

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Kunitomo, N.	Denver	Denver	Marshak, M. I.	Bayonne, N. J.	Denver
La Croix, Ray R.	Denver	Denver	Martin, W. F.	Colorado Springs	El Paso
Lahmer, I. B.	Walsenburg	Huerfano	Marvin, L. B.	Pueblo	Pueblo
Lamberton, Robt. E.	Denver	Denver	Mathews, P. G.	Walsenburg	Huerfano
Lamme, J. M.	Walsenburg	Huerfano	Matlack, J. A.	Longmont	Boulder
Lamme, S. J.	Walsenburg	Huerfano	Matthews, B. H.	Denver	Denver
LaMoire, H. A.	Pueblo	Pueblo	Maul, H. G.	Denver	Denver
Lane, Harold C.	Denver	Denver	Maul, R. F.	Denver	Denver
Langdon, E. E.	Silverton	Denver	Maxwell, J. G.	Cañon City	Fremont
Langdon, G. W.	Oak Creek	Northwestern	Mayhew, D. P.	Colorado Springs	El Paso
Lannon, A. R.	Denver	Denver	Maynard, C. W.	Pueblo	Pueblo
Larimer, G. W.	Salida	Chaffee	McAmis, L. C.	Denver	Denver
LaRue, C. L.	Boulder	Boulder	McArthur, A. W.	Delta	Delta
Larson, J. H.	Wray	Mesa	McBride, W. L.	Seibert	Kit Carson
Lassen, Fritz.	Pueblo	Pueblo	McCain, A. C.	Ault	Weld
Latta, C. J.	Sterling	Northeast	McCarroll, James ..	Denver	Denver
Lawson, J. A.	Rocky Ford	Otero	McCartney, F. M.	Denver	Denver
Lazell, Edward W.	Denver	Denver	McCarty, D. W.	Berthoud	Larimer
Leavitt, Byron C.	Millbrook, Mass.	Denver	McCaw, J. A.	Denver	Denver
Lee, G. H.	Denver	Denver	McClanahan, A. C.	Delta	Delta
Lee, H. C.	Trinidad	Las Animas	McClanahan, R. K.	Colorado Springs	El Paso
Lehan, J. W.	Greeley	Weld	McClanahan, Z. H.	Colorado Springs	El Paso
Lennox, P. M.	Colorado Springs	El Paso	McClure, C. O.	Trinidad	Las Animas
LeRossignol, W. J.	Rifle	Garfield	McConnell, J. C.	Somerset	Delta
Levin, O. S.	Denver	Denver	McConnell, J. F.	Colorado Springs	El Paso
Levy, Maurice.	Denver	Denver	McCorkle, H. B.	Colorado Springs	El Paso
Levy, Robt.	Denver	Denver	McDonald, A. J.	Aspen	Lake
Lewis, G. B.	Denver	Denver	McDonald, F. J.	Leadville	Lake
Lewis, Robert	Denver	Denver	McDonald, R. J.	Leadville	Lake
Lewis, W. B.	Denver	Denver	McDonald, R. J., Jr.	Loveland	Larimer
Lewis, W. H.	Hotchkiss	Delta	McDonnell, J. J.	Pueblo	Pueblo
Leyda, James H.	Denver	Denver	McDonald, J. G.	Loveland	Larimer
Leyda, Paul.	Frederick	Boulder	McFarland, S. B.	Longmont	Boulder
Libby, Geo. F.	Denver	Denver	McGonigle, J. I.	Pueblo	Pueblo
Liddle, E. B.	Colorado Springs	El Paso	McGraw, H. R.	Denver	Denver
Liggett, H. S.	Denver	Denver	McGugan, A.	New York	Denver
Eikes, L. E.	Lamar	Prowers	McHugh, P. J.	Fort Collins	Larimer
Lincoln, C. L., Jr.	Denver	Denver	McIntyre, T. A.	Colorado Springs	El Paso
Lindsay, Kate.	Boulder	Boulder	McKay, J. H.	Denver	Denver
Lingenfelter, G. P.	Denver	Denver	McKeedy, F. E.	Olney Springs	Pueblo
Lingenfelter, H. A.	Durango	San Juan	McKeen, H. R.	Denver	Denver
Lipscomb, J. M.	Denver	Denver	McKelvey, S. R.	Denver	Denver
Little, Lowell.	Hayden	Northwestern	*McKenzie, C. D.	Denver	Denver
Little, W. T.	Cañon City	Fremont	McKeown, E. E.	Denver	Denver
Lockard, Lorenzo B.	Denver	Denver	McKibben, S.	Creede	San Luis Valley
Lockwood, C. E.	Olathe	Montrose	McKinnie, L. H.	Colorado Springs	El Paso
Lockwood, F. W.	Fort Morgan	Morgan	McKinnis, C.	Denver	Morgan
Löf, A. J. O.	Denver	Denver	McLauthlin, C. A.	Denver	Denver
Long, Margaret.	Denver	Denver	McLauthlin, H. W.	Denver	Denver
Long, T. F.	Denver	Denver	McMichael, A. O.	Denver	Denver
Loomis, P. A.	Colorado Springs	El Paso	McNaught, F. H.	Denver	Denver
Lorimer, H. F.	Ordway	Otero	McNeill, F. A.	Dove Creek	San Juan
Love, Minnie C. T.	Denver	Denver	*Meacham, J. W.	Denver	Denver
Love, Tracy R.	Denver	Denver	Mead, Ella A.	Greeley	Weld
Lovejoy, H. E.	Rocky Ford	Otero	Meador, Chas. N.	Denver	Denver
Low, H. T.	Pueblo	Pueblo	Means, F. M.	Holyoke	Northeast
Lowen, Chas. J.	Denver	Denver	Menkel, H. C.	Simla, India	Denver
Lucas, Wilbur	Pueblo	Pueblo	Menser, Bert ..	Denver	Denver
Lucy, D. R.	Denver	Denver	Metcalf, A. W.	Denver	Denver
Luqueer, F. A.	Pueblo	Pueblo	Metz, C. W.	Denver	Denver
Lusby, A. C.	Brush	Morgan	Meyer, S. S.	Greeley	Weld
Lyman, Chas. B.	Denver	Denver	Middlekamp, M. S.	Pueblo	Pueblo
Lynch, E. B.	Leadville	Lake	Miel, Geo. W.	Denver	Denver
Lyns, Oliver	Denver	Denver	Mierley, Ira C.	Denver	Denver
Macomber, Geo. N.	Denver	Denver	Miles, Amy B.	Boulder	Boulder
Macomber, H. G.	Denver	Denver	Miles, M. E.	Boulder	Boulder
Madden, J. H.	Colorado Springs	El Paso	Miller, A. E.	Delta	Delta
Maddler, N. A.	Greeley	Weld	Miller, C. L.	Olpe, Kans.	Otero
Magruder, A. C.	Colorado Springs	El Paso	Miller, Eli A.	Denver	Denver
Mahoney, J. J.	Colorado Springs	El Paso	Miller, L. A.	Colorado Springs	El Paso
Male, J. T.	Yampa	Northwestern	Miller, L. I.	Denver	Denver
Manns, Rudolph	Denver	Denver	Miller, R. B.	Louisville	Boulder
Marbourg, E. M.	Colorado Springs	El Paso	Miller, Samuel W.	Denver	Denver
Markel, C.	Edgewater	Denver	Minner, M. G.	Denver	Denver
Markley, Arthur J.	Denver	Denver	Minnig, Arnold.	Denver	Denver
Marmaduke, C. V.	Pueblo	Pueblo	Mitchell, L. R.	Chivington	Prowers

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Mitchell, Wm. C....	Denver	Denver	Pattee, J. J.....	Pueblo	Pueblo
Mitchell, W. I.	Paonia	Delta	Patterson, J. A....	Colorado Springs....	El Paso
Mogan, W. E.....	Denver	Denver	Patterson, R. F....	Campo	Prowers
Moleen, G. A.....	Denver	Denver	Patterson, W. O....	Pueblo	Pueblo
Monaghan, D. G....	Denver	Denver	Peck, G. S.....	Denver	Denver
Monahan, A. J.....	Pueblo	Pueblo	Pecony, Jos. W....	Denver	Denver
Monismith, A. T....	Fort Lupton	Weld	Peirce, F. J.....	Pueblo	Pueblo
Monson, G. L.....	Denver	Denver	Peppers, A. W....	Hudson	Weld
Montgomery, D. H..	Denver	Denver	Perilli, Giovanni...	Rome, Italy	Denver
Moore, A. M.....	Denver	Denver	Perkins, C. C.....	Denver	Denver
Moore, Chas.	Colorado Springs...	El Paso	Perkins, I. B.....	Denver	Denver
Moore, C. C.....	Littleton	Arapahoe	Perkins, J. M.....	Denver	Denver
Moore, F. R.....	Florence	Fremont	Perrott, E. W. Jr...	Denver	Denver
Moore, R. D.....	Denver	Denver	Pershing, C. L....	Denver	Denver
Morehouse, J. A....	Sterling	Northeast	Pershing, H. T....	Denver	Denver
Morgan, J. W.	Denver	Denver	Pestal, Joseph.....	Lamar	Prowers
Morian, C. H.....	Denver	Denver	*Peters, A. H.....	Colorado Springs....	El Paso
Morning, J. F.....	Denver	Denver	Peterson, Edgar A..	Denver	Denver
Morrill, E. L.....	Fort Collins	Larimer	Philpott, J. A....	Denver	Denver
Morrish, R. W....	Fort Collins	Larimer	Pipkin, G. P.....	Pueblo	Pueblo
Morrison, C. S....	Colorado Springs...	El Paso	Pitney, Orville....	Cheraw	Otero
Morrison, R. G....	Denver	Denver	Place, O. G.....	Cañon City	Denver
Morse C. E.....	La Junta...	San Luis Valley	Plumb, Carl W....	Grand Junction	Mesa
Mortimer, J. L.	Denver	Denver	Poley, C. W.....	Boulder	Boulder
Morrow, E. L.....	Oak Creek...	Northwestern	Pollard, J. W.....	Denver	Denver
Moses, H. C.....	Colorado Springs...	El Paso	Porter, R. B.....	Fruita	Mesa
Mudd, W. G.....	Denver	Denver	Pothuisje, P. J....	Denver	Denver
Mugrage, E. R.....	Denver	Denver	Powell, Cuthbert...	Denver	Denver
Mullin, W. V.....	Colorado Springs...	El Paso	Powers, Chas. A....	Denver	Denver
Munro, E. H.....	Grand Junction	Mesa	Pratt, Elsie S....	Denver	Denver
Murphy, P. A.....	Chicago, Ill.	Denver	Presnall, C. W....	Trinidad	Las Animas
Myers, G. M.....	Pueblo	Pueblo	Prewitt, Francis E..	Denver	Denver
Myers, J. T.	Hotchkiss	Delta	Price, Evelyn B....	Pueblo	Pueblo
Nacamuli, Vittorio.	Denver	Denver	Price, R. C.....	Denver	Denver
Naugle, J. E.....	Sterling	Northeast	Printz, Morris....	Denver	Denver
Needham, Chas. N..	Denver	Denver	Prinzing, J. F....	Denver	Denver
Needles, J. W.	Pueblo	Pueblo	Proffitt, R. V....	Ft. Collins	Larimer
Neeper, E. R.....	Colorado Springs...	El Paso	Purcell, James W..	Denver	Denver
Nelson, G. E.....	Windsor	Weld	Queal, E. B.....	Boulder	Boulder
Neuhaus, G. E....	Omaha, Neb.	Denver	Ragsdale, E. W....	La Junta	Otero
Newcomer, Elizabeth	Denver	Denver	Ramsey, R. T.....	Denver	Denver
Newcomer, N. B....	Denver	Denver	Ranson, J. R.....	Denver	Denver
Newell, G. E.....	Buena Vista	Chaffee	Rapp, J. H.....	Denver	Denver
Newell, M. A.....	Denver	Denver	Rasar, R. B.....	Granada	Prowers
Newland, C. A....	Springfield	Prowers	Raymond, E. I....	Wellington	Larimer
Newman, J. A.....	Colorado Springs...	El Paso	Reed, C. W.....	Grand Junction	Mesa
Newsom, H. G.....	Denver	Denver	Reed, D. W.....	Saguache....	San Luis Valley
Nicoletti, Frank ...	Pueblo	Pueblo	Reed, W. K.....	Boulder	Boulder
Nifong, J. D.....	Denver	Denver	Reed, W. W.....	Boulder	Boulder
Noonan, G. M.....	Walsenburg	Huerfano	Reid, E. W.....	Flagler	Kit Carson
Norton, D. O.....	Fort Collins	Larimer	Replogle, B. F....	Fort Collins	Larimer
Nossaman, A. J....	Pagosa Springs		Rice, D. H.....	Colorado Springs....	El Paso
	San Luis Valley		Rich, W. F.....	Pueblo	Pueblo
O'Connor, J. W....	Denver	Denver	Richards, D. F....	Denver	Denver
Ogilbee, H. M.....	Manitou	El Paso	Richie, L. T.....	Trinidad	Las Animas
Ogle, W. M.....	Forbes	Las Animas	Richmond, C. E....	Colorado Springs....	El Paso
Ohmart, W. A.....	Denver	Denver	Richmond, G. E....	Denver	Denver
Olcott, Chas. T....	Boulder	El Paso	Rilance, Chas. D..	Denver	Denver
Olmsted, G. K.....	Denver	Denver	Ringle, C. A.....	Greeley	Weld
Olson, D. G.....	Keota	Weld	Ritterspach, F. J..	Brighton	Denver
Oppenheim, S. M...	Denver	Denver	Robb, F. C.....	Denver	Denver
Oram, O. A.....	Crested Butte	Boulder	Robb, Wm. J.....	Denver	Denver
Orendorff, Otis....	Cañon City	Fremont	Robe, R. C.....	Pueblo	Pueblo
Orsborn, G. E.....	Denver	Denver	Roberts, J. O.....	Denver	Denver
Osborne, C. K.....	Starbuck, Wash.	Lake	Roberts, W.....	Denver	Denver
Pace, J. G.	Woodman	El Paso	Roberts, Wm. J....	Denver	Denver
Packard, Geo. B....	Denver	Denver	Robertson, E. H...	Boulder	Boulder
Packard, Geo. B., Jr.	Denver	Denver	Robbins, A. W....	Durango	San Juan
Packard, Louis	Sterling	Northeast	Robinson, E. F....	Denver	Denver
Packard, Robt. G...	Denver	Denver	Robinson, G. W....	Trinidad	Las Animas
Palmer, F. E.....	Sterling	Northeast	Roe, John F.....	Denver	Denver
Palmer, W. A.....	Castle Rock	Denver	Roehrig, Karl F....	Denver	Denver
Parker, H. M.....	Denver	Northeast	Rogers, F. E.....	Denver	Denver
Parker, O. T.....	Salida	Chaffee	Rogers, J. S.....	Sterling	Denver
Parker, Thadd.....	Primerio	San Luis Valley	Rook, C. W.....	Julesburg	Northeast
Pate, C. E.....	Denver	Denver	Root, M. R.....	Denver	Denver

Name.	Postoffice.	Constituent Society.	Name.	Postoffice.	Constituent Society.
Rossiter, H. J.	Deertrail	Arapahoe	Steinhardt, E. H.	Pueblo	Pueblo
Rothwell, A. M.	Denver	Denver	Stemen, W. E.	Denver	Denver
Rothwell, P. D.	Denver	Denver	Stephenson, F. B.	Denver	Denver
Rover, H. W.	Denver	Denver	Stevens, F. T.	Colorado Springs	El Paso
Ruegnitz, L. H.	Denver	Denver	Stevens, H. L.	Denver	Denver
Rupert, J. K.	Alamosa	San Luis Valley	Stickles, Albert	La Junta	San Luis Valley
Rupert, L. E.	Florence	Fremont	Stilwill, H. R.	Denver	Denver
Ryan, J. G.	Denver	Denver	Stirling, Margaret B.	Burton, Nebr.	Morgan
Ryan, R. M.	Fruita	Mesa	Stoddard, T. A.	Pueblo	Pueblo
Ryder, Charles	Colorado Springs	El Paso	Stough, C. F.	Colorado Springs	El Paso
Sadler, E. L.	Fort Collins	Larimer	Stratton, Mary R.	Denver	Denver
Salisbury, E. I.	Denver	Denver	Streamer, C. W.	Pueblo	Pueblo
Sams, Louis V.	Denver	Denver	Strickler, D. A.	Denver	Denver
Savage, Joseph	Denver	Denver	Strong, J. C.	Leadville	Lake
Scannell, E. J.	Preston, Cuba	Las Animas	Stubbs, A. L.	La Junta	Otero
Schachet, R.	Denver	Denver	Stubbs, J. E.	La Junta	Otero
Schaefer, S. W.	Colorado Springs	El Paso	Stuver, E.	Fort Collins	Larimer
Schermerhorn, F.	Montrose	Montrose	Stuver, H. W.	Denver	Denver
Scherrer, E. A.	Denver	Denver	Sunderland, W. E.	Denver	Denver
Schoen, W. A.	Victor	Teller	Sutcliffe, Geo.	Wray	Morgan
*Schofield, J. V.	Inspiration, Ariz.	El Paso	Swan, W. H.	Colorado Springs	El Paso
Schwer, J. L.	Pueblo	Pueblo	Swerdfeger, E. B.	Denver	Denver
Sears, Thad P.	Denver	Denver	Swezey, Samuel	Denver	Denver
Sedwick, Wm. A.	Denver	Denver	Taussig, A. S.	Denver	Denver
Seebass, A. R.	Denver	Denver	Taylor, A. G.	Grand Junction	Mesa
Senger, Wm.	Pueblo	Pueblo	Taylor, Edward E.	Denver	Denver
Sewall, Henry	Denver	Denver	Taylor, H. L.	Denver	Denver
Shafer, Harry S.	Denver	Denver	Taylor, R. D.	Monte Vista	San Luis Valley
Shaffer, E. G.	Delta	Delta	Taylor, R. R.	Pueblo	Pueblo
Shands, H. R.	Colorado Springs	El Paso	Taylor, T. C.	Fort Collins	Larimer
Sharples, W. H.	Denver	Denver	Tennant, C. E.	Denver	Denver
Shea, R. M.	Denver	Denver	Tepley, L. V.	Denver	Denver
Sheller, W. O.	Lamar	Prowers	Thayer, M. D.	Rocky Ford	Otero
*Shere, O. M.	Denver	Denver	Thompson, C. W.	Pueblo	Pueblo
Sherman, E. M.	Pasadena, Calif.	Prowers	Thompson, David	Denver	Denver
Shields, J. M.	Denver	Denver	Thompson, D. G.	Trinidad	Las Animas
Shipman, F. M.	Victor	Teller	Thompson, H. M.	Pueblo	Pueblo
Shippey, O. P.	Saguache	San Luis Valley	Thompson, J. W.	Pueblo	Pueblo
Shivers, M. O.	Colorado Springs	El Paso	Thompson, N. A.	Denver	Denver
Shollenberger, C. F.	Denver	Denver	Thompson, W. E.	Greeley	Weld
Shopsire, J. W.	Pueblo	Pueblo	Thomson, W. E.	Fort Collins	Larimer
Shotwell, W. E.	Denver	Denver	Thulin, H. F.	Denver	Denver
Shultz, W. M.	Central City	Fremont	Tidd, C. H.	Telluride	Delta
Sickafoose, H. R.	La Veta	Pueblo	Timmons, E. L.	Colorado Springs	El Paso
Sickenberger, J. U.	Grand Junction	Mesa	Timmons, H. L.	Columbia, S. C.	Northeast
Sidwell, C. E.	Longmont	Boulder	Todd, J. C.	Boulder	Boulder
Simon, John	Englewood	Arapahoe	Toler, Thos. M.	Ault	Weld
Simon, Saling	Denver	Denver	Tower, F. A.	Denver	Denver
Singer, W. F.	Pueblo	Pueblo	Tremaine, Harmon	Denver	Denver
Skinner, M. G.	Washington, D. C.	Denver	Triplett, T. A.	Denver	Denver
Sloan, W. W.	Mt. Harris	Northwestern	Trout, A. L.	Walsenburg	Huerfano
Smiley, A. L.	Pueblo	Pueblo	Trueblood, Chas.	Monte Vista	San Luis Valley
Smith, A. E.	Marble	Denver	Trumbauer, C. A.	Denver	Denver
Smith, C. A.	Monte Vista	San Luis Valley	Tubbs, W. R.	Carbondale	Garfield
Smith, H. A.	Delta	Delta	Tucker, Beverley	Colorado Springs	El Paso
Smith, R. G.	Denver	Denver	Turner, W. E.	Brush	Morgan
Smith, R. J.	Westcliffe	Fremont	Twyford, May D.	Boulder	Pueblo
Smith, W. A.	Colorado Springs	El Paso	Tygart, C. A.	Denver	Denver
Snair, W. L.	Louisville	Boulder	Tyrell, H. C.	Durango	San Juan
Snedec, J. F.	Pueblo	Pueblo	Uji, Shigenatsu	Denver	Denver
Snyder, H. W.	Denver	Denver	Ulmer, H. D.	Denver	Denver
Soland, L. W.	Alamosa	San Luis Valley	Vanderhoof, D. A.	Colorado Springs	El Paso
Spangleberger, M. A.	Denver	Denver	Van Der Schow, G. E.	Fowler	Otero
Spaulding, W. F.	Greeley	Weld	Van Gilder, D. W.	Denver	Denver
Spearman, F. S.	Rice, Ariz.	Garfield	Van Meter, L. M.	Denver	Denver
Spencer, F. R.	Boulder	Boulder	Van Meter, S. D.	Denver	Denver
Spicer, Chas. M.	Denver	Denver	Van Stone, L. M.	Denver	Denver
Spicer, O. W.	Colorado Springs	El Paso	Van Stone, W. D.	Denver	Denver
Spitzer, W. M.	Denver	Denver	Van Zant, C. B.	Denver	Denver
Spivak, C. D.	Denver	Denver	Vogt, H. J.	Pueblo	Pueblo
Stahl, A. W.	Denver	Denver	Vroom, J. N.	Denver	Denver
Stains, Minnie E.	Colorado Springs	El Paso	Wade, L. H.	Denver	Denver
Starry, A. C.	Denver	Denver	Waggener, W. R.	Denver	Denver
Stanton, A. G.	Denver	Denver	Walker, C. E.	Denver	Denver
Steeves, Chas. P.	Denver	Denver	Wallace, F. E.	Pueblo	Pueblo
Steinberg, B. M.	Denver	Denver	Wallace, G. C.	Denver	Denver

News Notes

The final vote on the anti-vivisection bill was 35,416 for the bill, and 178,120 against, giving a majority against the bill of 142,704. This is the largest majority ever recorded in Colorado against an initiated or referred measure. The largest previous majority was against an act creating the county of Flagler, in 1920. There were 33,295 for the bill and 140,363 against, giving a majority of 107,068 against the measure.

Dr. H. G. Wetherill was elected president of the Western Surgical Association at the meeting in Minneapolis December 8 and 9. Other Colorado physicians in attendance at the meeting were: L. H. McKinnie, Colorado Springs; C. F. Hegner, Leonard Freeman, C. B. Lyman, C. E. Tennant, Cuthbert Powell and F. H. McNaught of Denver. Drs. Freeman, Wetherill and Powell took part in the program. The next meeting of the association will be held in Colorado Springs in December, 1923.

Dr. Richard Hayes of Pueblo, accompanied by his daughter, left November 26 for Ireland, where the doctor will do postgraduate study. He will probably also take some work in Germany and will be away from Colorado six to ten months.

Dr. C. L. LaRue of Boulder spent two weeks, following Thanksgiving, in Battle Creek, Michigan, where Mrs. LaRue has been as a patient for some time.

Dr. Charles A. Powers of Denver has been awarded the distinguished service medal by the United States war department. The citation states that as a surgeon with the French army and later with the American Red Cross military hospital No. 1 he displayed untiring energy and surgical ability of the highest order. It will be remembered that Dr. Powers was decorated by the French government just one year ago.

According to the daily press, two of Pueblo's doctors are leaving for other cities. Dr. Philip Work will move to Denver soon, where he will continue the practice of neurology; Dr. H. M. Thompson is leaving for Los Angeles in December where he will open an office for the practice of ophthalmology, retaining his office in Pueblo, however, and dividing his time between the two places.

Dr. A. E. Smith, until recently of Aspen, has moved to Marble where he will have charge of the hospital of the Colorado-Yule Marble Company.

The engagement of Dr. Leon Block of Denver to Miss Bertha Levy of New Orleans, La., has been announced, the marriage to take place early in 1923.

Dr. A. L. Trout of Walsenburg was reported, in the latter part of November, as being very ill at the C. F. & I. hospital.

Dr. Olin West, who was made Acting Secretary of the American Medical Association following the death of Dr. Alexander R. Craig, has been given the office of Secretary by the Board of Trustees.

Dr. Henry Sewall of Denver was expected to leave on December 12 for Santa Barbara, California, where he will remain probably one month.

Dr. A. J. Markley of Denver returned December 12 from California.

Twenty-five members of the Denver County Sanatorium Society were the guests of the El Paso County Sanatorium Society at a luncheon given at Cragmore Sanatorium, Colorado Springs, November 25.

Postgraduate Instruction.

One of the leading hospitals in Denver is offering a resident internship of three or six months duration to graduate physicians who desire to "brush up" on internal medicine, surgery and laboratory diagnosis. For particulars address Editor Colorado Medicine.

HELP!

Help make the new health journal go by subscribing yourself. See editorial this issue.

Warder, W. S.....	Boulder	Boulder
Walton, James B....	Denver	Denver
Waring, J. J.....	Denver	Denver
Warner, G. R.....	Denver	Mesa
Wasson, W. W.....	Denver	Denver
Waters, P. A.....	Denver	San Luis Valley
Watson, W. V.....	Plateau City	Mesa
Wear, H. H.....	Denver	Denver
Weatherford, J. E..	Denver	Denver
Webb, E. C.....	Cañon City	Fremont
Webb, G. B.....	Colorado Springs	El Paso
Weber, Fred H.....	Melrose, Mass.	Denver
Weidlein, F. H.....	Palisade	Mesa
Weirick, G. A.....	Denver	Denver
Weldon, Luther J....	Denver	Denver
Wells, N. D.....	Fort Morgan	Morgan
Welsh, E. D.....	Colorado Springs	El Paso
Wenk, J. A.....	Colorado Springs	Denver
Wescott, O. D.....	Denver	Denver
West, T. J.....	Pasadena, Calif.	Denver
Wetherill, H. G.....	Denver	Denver
Whitaker, H. L.....	Denver	Denver
Whitaker, W. O.....	Kirk	Kit Carson
White, H. T.....	Denver	Denver
Whiteley, P. W.....	Denver	Denver
Whitman, R. C.....	Boulder	Boulder
Whitney, H. B.....	Denver	Denver
Whittaker, D. L....	Mt. Harris	Northwestern
Wiest, Newton.....	Denver	Denver
Wilcox, H. W.....	Denver	Denver
Wilcox, Sarah C....	Denver	Denver
Wilkins, C. F.....	Fort Collins	Larimer
Wilkinson, C. H....	Cañon City	Fremont
Willett, F. E.....	Steamboat Springs	

Northwestern

Williams, A. F.....	Fort Morgan	Morgan
Williams, A. H.....	Denver	Denver
Williams, G. S.....	Lamar	Prowers
Williams, H. L.....	Flagler	Kit Carson
Williams, Judson ..	Colorado Springs	El Paso
Williams, N. C.....	Denver	Denver
Williams, S.....	Denver	Denver
Williams, W. W.....	Denver	Denver
Williamson, A. R....	Pueblo	Pueblo
Williamson, W. A....	Rockvale	Fremont
Willis, C. H.....	Denver	Denver
Wilson, R. D.....	Holly	Prowers
Wilson, R. E.....	Denver	Denver
Winston, A. L.....	Colorado Springs	El Paso
Winternitz, David ..	Colorado Springs	El Paso
Wise, O. C.....	Pueblo	Pueblo
Withers, Sanford...	Denver	Denver
Wolf, J. A.....	Denver	Denver
Wolf, John G.....	Pueblo	Pueblo
Wolfer, C. F.....	Louisville	Boulder
Wollenweber, L. C...	Denver	Denver
Wood, G. W.....	Bristol	Prowers
Wood, W. H.....	Greeley	Weld
Woodbridge, J. H...	Pueblo	Pueblo
Woodcock, B.....	Greeley	Weld
Woodruff, Dare.....	Denver	Northeast
Woodward, Harry...	Colorado Springs	El Paso
Work, Hubert.....	Pueblo	Pueblo
Work, Philip.....	Pueblo	Pueblo
Worthington, A. K...	Denver	Denver
Wright, J. B.....	La Veta	Pueblo
Wright, M. G.....	Denver	Denver
Wright, R. E.....	Loveland	Larimer
Wright, S. A.....	Loveland	Larimer
Wykeoff, G. L.....	Cherry Creek, S. D.	Larimer
Yale, F. C.....	Pyrolite	Pueblo
Yates, W. W.....	Loveland	Larimer
Yont, Kate.....	Denver	Denver
Young, H. B.....	Denver	Denver
Zener, Mary L.....	Boulder	Boulder
Zillman, O. E.....	Manzanola	Otero
Zimmerman, Wm....	Denver	Denver
Zinke, Wm.....	Collbran	Mesa

*Deceased.

CORRESPONDENCE.

Periodic Physical Examinations.

October 21, 1922.

To the Editor:

At the annual conference of Health Officers and Public Health Nurses of New York State held at Saratoga Springs last June, I referred to the importance of periodic physical examinations, which I have long advocated as a means for the preservation of health and the prevention of diseases through early recognition and correction of defects and abnormal conditions. Comments which have since appeared in a number of newspapers indicate that serious misconception exists in some minds as to the purport of my remarks. The impression seems to have arisen that I favor an official scheme of compulsory physical examinations, to be conducted by health officers or other physicians employed by the public authorities, with the implication that every man, woman and child should be required to submit to such a periodical inquest into his or her physical condition.

It does not seem really necessary to explain that I agree heartily with the critics of any such proposal, and that I never have and do not advocate any kind of compulsory state medical inspection of the individual citizen, except as such inspection is now carried on practically everywhere in our public schools and in charitable and penal institutions. A prying inquest by public authority into the physical condition of the adult citizen would be utterly repugnant to American ideas of individual rights and of the proper sphere of government. The worst enemy of periodic medical examinations could choose no better means of making his opposition effective than to advocate such a fantastic plan as seems to have been read into my address at Saratoga.

So much having been made clear, I ask space to repeat my conviction that nothing is more important for the citizen who cares to keep well than that he should go of his own free will to his own physician and demand thorough examination at reasonable intervals, with the application of all the resources of modern scientific medical knowledge. This means not merely a hasty examination of the heart and lungs with the stethoscope, but a complete medical survey, including various special tests of the blood and excretions, examination of the eyesight and hearing, as well as of the nose and throat, and often accompanied by an x-ray of the chest or other parts of the body. Adequate examination also means taking into account mental as well as physical factors, and basing conclusions on a full knowledge of living and working conditions, income, habits, recreations and the pertinent facts of family and personal history.

It must be obvious that such examination and advice based on it can be properly made and given only under the conditions of freedom and intimacy which are implied in the relation of the individual to his family physician. For the state to attempt thus to examine its citizens would be not only intolerable but futile, since the utmost degree of confidence and co-operation on the part of the patient is required if anything is to be accomplished. The best trained modern physicians are equipped to examine and advise their clients how to keep well and rightly expect to be consulted for this purpose and not merely to attempt the cure of an established disease. Perhaps it is not true that the Chinese pay their doctors only to keep them well, but if this popular legend is not based on fact, it was at least well invented, for it expresses the essence of the coming system and practice of civilized society. As was said recently in one of our radio health talks, "The human body is the only machine for which there are no spare parts." We must learn rightly to use and cheerfully to safeguard those which we have. And we can best do this by picking out a competent medical adviser, consulting him frequently, believing what he says, and following his counsel. If we do this as

free individuals the health of the state will largely take care of itself.

HERMANN M. BIGGS,
State Commissioner of Health, New York.

National Board Examinations.

November 22, 1922.

Dear Sir:

Will you be kind enough to publish the following announcement in your Journal at your earliest opportunity?

The National Board of Medical Examiners announces the following dates for its next examinations:

Part I: February 12, 13 and 14, 1923.

Part II: February 15 and 16, 1923.

The fees for these examinations have been continued at the reduced rate for another year. Applications for these examinations must be forwarded not later than January 1, 1923. Application blanks and circulars of information may be obtained from the Secretary of the National Board, Dr. J. S. Rodman, Medical Arts Building, Philadelphia, Pa.

Thanking you for your cooperation in this matter, I remain,

Sincerely yours,

J. S. RODMAN,
Secretary, National Board of Medical Examiners.

Greeley Hospital to be Standardized?

To the Editor of Colorado Medicine:

On the evening of November ninth the Weld County Medical Society gave its annual dinner at the Greeley Hospital. The invited guests were the County Commissioners of Weld County, Dr. Philip Hillkowitz and Dr. Melville Black of Denver. A splendid dinner was partaken of and an enjoyable evening spent in the new hospital.

This institution is one of the most fully equipped hospitals in the state. Weld County may well be proud of it. It is intended to serve pay patients as well as those in charge of the county.

The question of hospital standardization was freely discussed and the county commissioners were urged to put into force the requirements necessary to make the new Greeley hospital a standard hospital. It was explained by Dr. Hillkowitz that the three requisites for standardization were, case records, staff meetings and a laboratory.

Considerable discussion took place on the question of a laboratory. The commissioners felt that if the laboratory was to be an added expense its adoption would be difficult. It was pointed out that this need not be the case, and that it could be made to be self-sustaining. It was also pointed out that the new hospital plant was an exceptionally fine one and that it was too good to be rated as a second class hospital, especially when the medical staff were willing to do their part in the two requirements of record taking and staff meetings.

MELVILLE BLACK.

Infectious Jaundice Data Wanted.

December 9, 1922.

Editor Colorado Medicine:

The Colorado State Board of Health is frequently receiving requests for information relative to the subject of infectious jaundice in this state.

I have unofficial information that there has been much of this disease here but it is not reportable and, consequently, does not come to the State Board of Health.

The State Board of Health would appreciate any information obtainable relative to epidemic jaundice, and I would appreciate it very much if you would put a notice to that effect in your journal.

Yours very truly,

TRACY R. LOVE,
Secretary, Colorado State Board of Health.

Human Actinomycosis Data Wanted.

December 6, 1922.

To the Editor: I am endeavoring to make a complete study of the distribution of human actinomycosis in this country. The number of cases reported in the literature is surprisingly small, and I know that the disease is not so rare as is sometimes thought. I shall greatly appreciate hearing directly from anyone who has had experience with this disease, and desire to know concerning case histories the following: age, sex, occupation, residence, state in which the disease was contracted, location of lesion, duration of symptoms, and any special points of interest connected with the treatment, outcome of the disease, or necropsy findings.

A. H. SANFORD, M.D.,
Mayo Clinic, Rochester, Minnesota.

FOR SALE.

The library, medical and surgical instruments, office equipment, and lease of Dr. W. F. Church, late of Greeley, Colorado.

Those interested may communicate with F. J. Green, Greeley National Bank Building, Greeley, Colorado.

Medical Societies

FREMONT COUNTY.

The **Fremont County Medical Society** met in Florence, November 27th, 1922, with a large attendance.

Cigars were furnished by Dr. Davis by way of celebrating the event of a new daughter.

F. R. Moore presented a patient 84 years old, female, with chronic cystitis who had during the past three months developed multiple tumors scattered over the entire body ranging in size from a shot to an egg and varying much in form. They were very hard and movable and one situated in the upper right eyelid was causing trouble with vision because of closure of the lid from pressure. The members all agreed that these growths were malignant and Dr. Moore promised to have laboratory tests made with a report at the next meeting.

T. A. Davis presented a case of a 6-year-old boy who is now recovering from an acute attack of encephalitis complicating influenza. The patient was taken sick very suddenly and in a few hours the temperature reached 108° and there were tonic spasms, blindness and loss of many reflexes. The doctor went into detail relative to the diagnostic point between this disease and tuberculous meningitis and other conditions that might be mistaken for it. The treatment was expectant and the doctor modestly considered the recovery due to good luck.

G. D. Cummings read a paper on "Diagnosis", first going into the chemistry of digestion and metabolism and then reciting three cases similar in character but different in termination, all due to autointoxication.

OTIS ORENDORFF, Secretary.

J. C. R. S. CLINICAL.

A report of semi-monthly meetings of the **J. C. R. S. Clinical Society** for Oct. 12 and Oct. 28, 1922.

Non-tuberculous pulmonary infections.

Meetings were called to order by Dr. A. S. Taussig.

Staff presented a case of a man 47 years old who gave a history of a chronic morning cough since 1917, gradually increasing in severity and intensity of the paroxysms. Eight to ten ounces of foul-smelling sputum would be brought up at one time. The physical signs as well as the roentgen plates were not characteristic of pulmonary tuberculosis. The sputum was consistently negative for tubercle bacilli. The question of differential diagnosis between tuberculosis, lung abscess and bronchiectasis was the basis for discussion. Dr.

Wm. N. Beggs was of the opinion, in view of the increased mottling of the upper lobes, that this is a case of tuberculosis, complicated by bronchiectasis and Dr. A. S. Taussig suggested the term pulmonary suppuration to cover all such cases where a definite diagnosis cannot be made. Drs. C. A. Bundsen and L. W. Frank cited similar cases that obtained much relief from postural treatment and also suggested that bronchoscopy after the Lynch method might be worth while trying.

The next case presented was a man forty-two years old with a history of gradual onset of pulmonary symptoms since 1918, characterized by excessive cough and bloody expectoration, but nutrition was well maintained, until one month ago when he lost seven pounds. That loss was accompanied by an aggravation of all pulmonary symptoms. There was no history of frank hemoptysis. All the laboratory findings were negative. Physical examination revealed evidence of a pulmonary lesion limited chiefly to the left lower lobe. The roentgen plate disclosed a dense circular shadow extending from the fourth rib to the diaphragm with a definite fluid level. The shadow did not seem connected to the diaphragm. The differential diagnosis between bronchiectasis, lung abscess, echinococcus cyst and malignancy was the basis for discussion. Dr. Beggs thought that malignancy was the nearest diagnosis as in none of the other conditions is a fluid level present except when the mass breaks into the pleural cavity or a bronchus. Dr. Emanuel Friedman discussed the possibility of malignancy ingrafted upon an old lesion and Dr. Taussig, in favor of malignancy, suggested therapeutic pneumothorax as a palliative measure and in the absence of pleural space, to aspirate the mass for diagnostic purposes.

I. D. BRONFIN, Secretary.

WELD COUNTY.

On November 2nd the **Weld County Medical Society** held its annual dinner at the Greeley Hospital and invited all the physicians of the county. There were about forty of them present. Also present as guests were the County Commissioners and Drs. Philip Hillkowitz and Melville Black of Denver. Dr. Hillkowitz gave us an interesting and enthusiastic talk on Hospital Standardization. Dr. Black addressed the gathering on Medical Organization.

There was considerable discussion about making the Greeley Hospital a Class A hospital, according to the American Hospital Association standards. It was voted to have a committee appointed to endeavor to make out the rules and regulations and to form a staff for the hospital.

There were good eats and all enjoyed the meeting.

THOS. E. ATKINSON,
Secretary.

Notes From the Library

BOOK REVIEWS.

The Evolution of Public Health Nursing. By Annie M. Brainard. Editor of "The Public Health Nurse", Lecturer on Administration of Public Health Nursing in Western Reserve University. 12 mo. of 454 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, \$3.00 net.

The author traces the evolution of the nurse through the centuries, from the deaconess in the early church, the "Lady Bountiful" of the middle ages, to the district nurse of modern times; and, finally, to the highly trained nurse of today. She, the nurse, is now engaged in the art of prevention of disease, as well as teaching the people the way of sanitation, yet she neglects not the bedside of the sick.

A most interesting book for an evening's reading, and one which shows an historical background

to those who are interested in a sociological phenomenon in this busy, bustling world of ours.

There is no mention of male nurses, so I presume that this is one field preempted by the women; just why I do not pretend to offer explanation. I remember one instance, however, where a mere man played a very important part as nurse. A certain traveler had lost his clothes by robbery, left stranded in his "E. V. Ds", had been wounded and left half dead. Two other gentlemen had seen him, but passed by on the other side—perhaps had they been women they would not have done so, but, as the narrative continues, this man whom I have mentioned, saw him and had compassion on him, and went to him and bound up his wounds, dressed them according to the custom of that day, furnished him transportation to the hotel and gave the landlord some expense money, with instructions to take care of him, and if any more money was needed, promised to pay that.

I believe I could preach a sermon on the above incident:

Firstly, "When he saw him, he had compassion on him"—one of the prime requisites of a nurse. I have found some of them without this little thing—compassion.

Secondly, he gave him first-aid treatment—the nurse must have some knowledge of surgery and medicine.

Thirdly, he had transportation—the nurse must have a Ford.

Fourthly, some means must be found for taking care of the finances of the poor, as well as of the nursing profession; also, this man's financial standing was good or the landlord would not have trusted him.

These qualifications found in the Samaritan should be found in the nurse of today, and I doubt seriously if the Samaritan preached the unfortunate a sermon on keeping out of bad company, a very tactful thing, as the wounded man had troubles enough for once.

But this book is well worth a careful reading; it gives us a better understanding of the many changes through which the profession of nursing has passed and makes us more appreciative of, and sympathetic with, the great body of professional women that has grown up alongside the professional sanitarian.

J. W. M.

The Propaganda for Reform in Proprietary Medicines, Vol. 2, 1922. Containing Reports of the Council on Pharmacy and Chemistry and contributions from the A. M. A. Chemical Laboratory and from the Journal of the American Medical Association. Cloth. Price, \$2.00. Pp. 603 with illustrations. Chicago: American Medical Association, 1922.

The present book is the second volume of the "Propaganda for Reform in Proprietary Medicines." The first volume ran through nine editions. The ninth edition contained (1) the most important reports of the Council on Pharmacy and Chemistry, (2) the reports of the A. M. A. Chemical Laboratory, and (3) those articles from the Journal of the American Medical Association which deal with the problems of proprietaryship in medicine and the furtherance of rational drug therapy. All of this material covered a period prior to 1917.

The present (second) volume contains similar material covering the period from January, 1917, to April, 1922, inclusive. Like Volume 1, this volume is divided into four parts:

Reports of the Council on Pharmacy and Chemistry:—This section presents the principles and rules which govern the Council in the examination of medicaments, contains articles and reports bearing on the work of the Council as well as the most important reports of the Council from 1917 to April, 1922, inclusive.

Reports of the A. M. A. Chemical Laboratory:—This, besides presenting the aims and objects of the Association's Chemical Laboratory, also outlines some of the Laboratory's work which is of special interest to physicians.

Contributions from The Journal: Proprietary

Products:—This contains articles which have appeared in The Journal A. M. A. on proprietary preparations and their methods of exploitation.

Contributions from The Journal: Miscellany:—In this section are articles dealing with matters of interest to the medical profession but not coming strictly under the classification of proprietary medicinal preparations.

A comparison of the material that has appeared in Volume 1 of the Propaganda for Reform with that which appears in this volume will reveal the changing conditions in the proprietary medicine field. Many of the reports in the first volume brought out the fact that medicinal preparations were at that time foisted on the profession with false claims of composition; reports of this character are less conspicuous in the present volume. Many of the reports in Volume 2 deal with unwarranted therapeutic claims, especially those advanced for animal organ preparations, serums, vaccines, preparations for intravenous medication, etc. The present volume will also be found of interest in its portrayal of the changed conditions in proprietary medicines brought about by the World War.

The index in this new volume is, in effect, a bibliography, including references not only to articles in the book but also (a) to articles which appeared in Volume 1; (b) to articles on the same general subject in The Journal of the American Medical Association, and (c) to articles appearing in the annual reports of the Council on Pharmacy and Chemistry and of the A. M. A. Chemical Laboratory, but not printed in either volume of the Propaganda for reform in Proprietary Medicines.

This book is not only valuable for the information it contains, but it is also interesting. It shows up the technique of the artist in the sale of proprietary medicines, tells of his skilful word-pictures that are sent to the physician as "literature." It makes clear the work of the Council on Pharmacy and Chemistry, the A. M. A. Chemical Laboratory and The Journal of the American Medical Association in their several capacities as servants to the medical profession and as champions of rational medicine. The book should be in every physician's library, and more than that, should be within reach for convenient reference.

Syphilitic Aortic Aneurysm.

Stolkind quotes various authors on the etiology and pathogenesis of this condition. He has been unable to find in the literature a single case of proved hereditary syphilitic aortic aneurysm in older children and especially in adolescents and adults. As regards sex, aortic aneurysms were found in eleven out of thirty-six female patients with syphilitic aortitis or nearly thirty percent; out of ninety-six male patients, in forty-seven or nearly forty-nine percent. In England and Wales deaths from aneurysm reported in 1919 were 711 males and 180 females. Of the 891 deaths one occurred in a child under one year; 2 between 10-15; 35 between 20-35; 120 between 65-75; 58 at 75 years and upwards. In the majority of cases the patients were infected with syphilis at the age of 19-25 years. The interval between syphilitic infection and death in the majority of cases of syphilitic aortic aneurysm ranged between 15-30 years. Tisellius reported that out of 850 insured persons with syphilitic infection 3.4 percent died of aortic aneurysm. Out of 150 cases reported by Blaschko, 2.6 percent died. Symptomatology, diagnosis and complications of aortic aneurysm are discussed. Treatment which Stolkind recommends is given. A unique case of miliary gummata, meso-aortitis (aortitis gummosa) and aneurysm of the descending aorta is recorded.

Six cases of syphilitic aortic aneurysm with a post-mortem examination made by Prof. E. Frankel are recorded. (E. J. Stolkind, Medical Press, London, May 31, 1922).—Reprint from "Abstracts From Recent Medical and Public Health Papers, Issued by the Division of Venereal Disease, U. S. Public Health Service".

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